University of Alberta

Student Experiences with Synchronous Computer Conferencing

Wendy Caplan 

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Dedication

To my Mother, Rose Caplan and my late Father, Max Caplan for all the hope, faith and dreams they had for me.

To Don, Daniel and Joshua for allowing me to live out the dreams.

And with the deepest regard for writers like Stephen Talbott, Neil Postman

and David Noble who ask us always to think about what it is that we do.

> *Those who resist the American Technopoly are people...*
> *who take seriously the meaning of family loyalty and honor, and whom, when they "reach out and touch someone," expect that person to be in the same room; (Postman, 1993, p.184)*

> ***On being awake**: ...we need to grasp the difference between driving a car and walking, or between viewing a two-dimensional, perspective image and participating in the world itself, or between interacting with a computer and interacting with a person. But these are exactly the inner distinctions we have been training ourselves to ignore. It is no surprise then that many can now readily conceive of dealing with computers that are, for all practical purposes, indistinguishable from persons. (Talbott, 1995, p. 133)*

> *There is, after all, one absolutely unavoidable fact: technologies for "bringing people together" do not necessarily "bring people together". (Talbott, 1995, p. 140)*

> *To the dictum, you can't stop progress, we must learn to respond: of course you can. (Noble, 1995, p.63)*

Abstract

Early proponents of on-line education determined that one of the distinct advantages of this method of learning was the "any time, any place" flexibility provided by the use of asynchronous conferencing tools. While most conferencing systems offered the possibility of synchronous interactions, it's value was minimised as it eliminated the flexibility that was otherwise afforded.

This qualitative study sought to examine student experiences with synchronous conferencing in an effort to determine the benefits and consequences of adding this form of conferencing to an on-line course. Overall, the response from students indicated that value was added by the inclusion of the synchronous conferences and that a combination of the two conferencing environments provided them with the opportunity to use each to its best advantage. Recommendations for best use of synchronous conferences were culled from the data and an assessment of its use in the facilitation of critical discussion was included.

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Chapter 1

Overview of the Research

INTRODUCTION

When I first began my research in the area of computers and education I read a book by Lewis J. Perelman titled School's out: Hyperlearning, the new technology and the end of education (1992). In it he proposes a radical solution to deal with what he considers to be the problems in education. Simply put, he advocates the replacement of schools as we now know them with something he refers to as Hyperlearning (HL), made possible by the ever increasing capabilities of electronic and computer technology. On the surface, I found his arguments to be convincing, if not compelling. As I began the book, I could nod in agreement with his orderly review of the trouble with schools and, at times, with the reasoned approach he takes toward his solution. But the more I read, the more troubled I became with the author's singularity of thought and with his conviction that technology could resolve all that was wrong with education. It was clear that Mr. Perelman's solution was driven by his "More, Better, Faster, Cheaper" motto; his belief in the inherent good of privatisation and profiteering; and his dedication to a technocratic culture. By the end of the book I concluded that, had the author been presenting us with a parody of technology in education, it could have been useful and thought provoking. Unfortunately, he wasn't. This was truly his vision of the future of education. Nevertheless, this book did help me to

understand how potentially dangerous the unequivocal acceptance of technology in education is, and how important it is to maintain a critical position in assessing its use .

While acknowledging that I take a critical perspective when looking at technology in general, and specifically within education, I would suggest that labelling me a "Luddite", a term that has become fashionable in both the critical and non-critical technology camps, would be somewhat simplistic given the implications that are now commonly associated with that term. Like others who take a more critical stance, I recognize that computer technology is here and has become an integral part of our existence. I often use it. I also know that while technologies have sometimes been badly used, they have also been used well. Both history and experience tells us that. And while I might even find it complimentary to be associated with a group of individuals who fought so hard and determinedly for something they believed was right, I prefer to be seen as someone who has come to the task of looking at the implementation of technology in education by heeding the words of Neil Postman when he says:

> The role that new technology should play in our schools or anywhere else is something that needs to be discussed without the hyperactive fantasies of cheerleaders... It is strange - indeed, shocking - that with the twenty-first century so close on our heels, we can still talk of the new technologies as if they were unmixed blessings, gifts, as it were, from the gods. (1995, p.41)

In this fast changing, information age, when all of us are being encouraged to embrace more and more technologies in our daily lives, it becomes

increasingly important to critically evaluate and assess the impacts of imposing new uses of technology on individuals and on society as a whole. And in implementing technology in educational programming, we need to know there is some educational value in its usage, no matter how fluidly that concept may be defined, and that it is not being embraced primarily in response to the cry for fiscal restraint and increased efficiency that we commonly hear echoing within the public domain. In addition, we want to ensure that our commitment to educational technologies transcends our fascination with all things that "glitter" and to move beyond the notion that we are ready and willing to adopt educational technologies simply because we can.

While technology has become firmly rooted in education, the feelings and attitudes of those affected by this phenomenon are quite divergent. There are those who place great faith in the ability of technology to promote a sense of community and enhance the educational process (Harasim, 1989; Rheingold,1994), while others critically question the profound effects that technology has, not only in the educational realm, but in a much wider societal context (Noble, 1995; Postman, 1995; Stoll, 1995; Talbott, 1995; Winner, 1989). Despite these conflicting points of view, government support of technological innovations is escalating. It is clear that as more money becomes available to support technology, educators are being encouraged to incorporate it into the curriculum and to look at extensions and alternatives to the delivery of face to face instruction. But, because many technologies are

relatively new, little is known about the nature of the interaction between students, instructors and the technologies or of the extent to which individual technologies contribute to adult learning.

WHY LOOK AT SYNCHRONOUS COMPUTER CONFERENCING?

The adoption of web-based, computer technologies as tools through which courses are provided by formal, post-secondary institutions, is now growing at an exponential rate. Courses are being developed within dynamic environments that allow for the integration of communication media used in an effort to add different learning dimensions to a course. Often courses combine media such as print materials, Web-based instruction, audio, video, asynchronous and synchronous computer conferencing. Valuable information and feedback can be gathered from student and instructor experiences in this new educational environment by deconstructing these combinations and looking at how individual technologies may, or may not, contribute to the learning environment. In this thesis I will look at synchronous computer conferencing as it is used in a formal, adult education environment.

As opposed to asynchronous conferencing, synchronous computer conferencing involves two or more participants communicating at the same time, but in different locations, using the computer as a medium. The interaction that takes place is known as "real time" conversation and

resembles that of face-to-face discussion in its ability to enable participants to immediately read and respond to other discussants. While asynchronous discussion is often lauded as providing the benefit of time independence for distance education students (Berge & Collins, 1993; Harasim, 1989) some studies show this same feature can be considered a disadvantage, causing students to devote more time to reading and responding to messages than they would like. The asynchronicity of the responses can also be seen as fragmenting the discussion, causing some students to lose interest. While research on computer conferencing has frequently focused on the positive outcomes of an asynchronous conferencing environment, it has also raised questions as to whether some of the disadvantages of asynchronous conferencing could be alleviated through the adoption of a synchronous conferencing format.

Elizabeth Burge's article "Learning in Computer Conferenced Contexts: The Learners' Perspective"(1994) is based on her qualitative study of adult students involved in courses that included asynchronous computer conferencing. The concerns of these students regarding the disadvantages of the discussion group were similar to those found in a later study by Daniel Eastmond (1995). Burge writes:

> The weaknesses of CC identified most often were categorized into peer interaction, information quantity, discussion fragmentation, and time problems .... Time, when identified as a weakness of CC, was seen to affect information processing and management. Delays were experienced in getting responses to messages, the need to process information quickly, and the desire of some interviewees for real-time interaction with peers and with their instructor. (1994, p.33)

In his study titled Alone But Together (1995), Daniel Eastmond investigated the experience of distance education students participating in courses which incorporated asynchronous computer conferencing as a mode of communication between students and instructors. Through this qualitative study, Eastmond contributed to our understanding of how the introduction of computer conferencing (CC) affects individual students, and the dynamics of introducing CC to support interactive distance learning . He used the participants' experiences as described to him in personal interviews, as well as his own interpretations, in presenting the research. While he was able to identify many advantages of using asynchronous discussions, he also clearly recognized the disadvantages that some students experienced. Among these he cited:

- difficulty in maintaining enthusiasm, interest and knowledge of the topic
- frustration at not "hearing" immediately back
- forgetting the particulars of the subject by the time the response comes back
- difficulty in clarifying the meaning of some responses (Eastmond, 1995, p.72).

All of these concerns stemmed from the "lag" time that is an inherent feature of asynchronous communication.

In both studies, there was an indication that value could be had from the introduction of a synchronous, or real time discussion between the students and the instructor. Continued monitoring of the discussion surrounding on-line learning (through my membership in a distance learning listserve) has also brought to my attention a significant amount of speculation as to the

contribution that synchronous conferencing might make in an on-line course. While many instructors have ignored the potential of synchronous conferences for a variety of reasons including, the difficulty of coordinating students through time zones; the potential for confusing and disjointed conversations; and concerns regarding student access due to lack of typing and communication skills required of a synchronous environment, there are others who look optimistically towards synchronous conferencing for a variety of reasons. The following comments, made on two different listserves and on an on-line forum dedicated to discussing synchronous conferencing, illustrate the diverse potential that some would attribute to the inclusion of synchronous conferencing in their distance learning courses and programs.

From the Node Forum:

> ...you enter a chat room, ask your teacher/classmate a few questions right on the spot, and get it all answered within a few minutes. the synchronous nature of chat can be very attractive. (cypherpunk, March 17, 1999)

> In Distance Learning, chat represents the opportunity for students to interact directly with each other and their instructor, and brings the Distance Learning experience closer to the classroom experience. (Tom Auger, March 12, 1999)

From the AEDNET listserve:

> This week we are adding Chat which will provide the students with a place to meet and chat about courses and personal goals. We hope chat will add a dimension of community to our programs. (Terrance Redding, Feb. 10, 1999)

From the DEOS listserve:

> ...since Socratic dialogue is essential to education, I use live IRC chat for 2 hours per week...I have 3 sections of my course I offer during

> waking hours, which provides a reasonable section for anyone on earth to attend. Indeed, some of my sections look like the cantina scene out of star wars. (John Spiers, April 4, 1999.)

Given the outcomes of both of the earlier studies, and the optimism that is apparent among at least a few educators with regards to synchronous conferencing, there would seem to be some importance in considering and evaluating synchronous methods of instruction through studying the experiences of those students and instructors who have used this type of communication in distance education courses. This study will focus on student experiences. In so doing, it is hoped that we can gain a better understanding of the ways in which synchronous conferencing may be able to contribute to an alternative learning environment and to determine how to make best use of this tool. This type of understanding can guide educators in the design, development and implementation of on-line learning environments. Potentially, some of the disadvantages experienced by students involved in CC courses that use only asynchronous conferencing may be addressed through the addition of synchronous conferencing activities. And, rather than thinking of these two mediums as being juxtaposed, I have found it useful to approach my research by considering the complementary nature of these tools and the potential each may have for contributing added value and satisfaction to an on-line learning environment.

PURPOSE OF THE STUDY

This research will focus on student experiences with synchronous computer conferencing in an effort to gain a better understanding of how this particular technology can be used within formal adult education courses. In an overall sense, the research will attempt to provide learners with an opportunity to describe their experiences of synchronous conferencing within a formal, adult education course, and to voice their reactions and opinions related to this experience.

RESEARCH QUESTIONS

Specifically, I would like to provide a better understanding of the following questions.

- In what ways does the introduction of a synchronous discussion contribute to learning? For example, how does synchronous computer conferencing facilitate dialogue, assist in the creation of a collaborative learning environment and contribute to the building of a learning community?

- What difficulties does synchronous conferencing foster?

- What learning activities are particularly conducive to synchronous computer conferencing?

- What issues does the introduction of synchronous computer conferencing raise for students ?

As we continue to provide students with on - line learning opportunities, it becomes increasingly important to monitor the impact that the technologies have on those most intimately affected by them.

DEFINITIONS

Computer conferencing: Computer conferencing systems...use the power of a host computer to support sophisticated group and many-to-many communication facilities. Individual users can join 'conferences' on specific subjects of interest....(Kaye, 1989, p. 4)

Asynchronous discussion: Takes place between members of a computer – mediated conference/discussion group who are at different places and communicate at different times. This type of discussion is similar to that which takes place through Listserves or Bulletin Boards.

Synchronous discussion: Takes place between members of a computer – mediated conference/discussion who are at different places but online at the same time. This type of discussion is similar to that which takes place in "chat" groups.

Distance Education: Distance education is characterised by the separation of instructor and learner for most all of the learning experience which is mediated and provided by formal instruction.

The increased acceptance by educational institutions to provide learning opportunities to students without requiring them to come on campus, along with their adoption of technologically integrated course development models, has altered the traditional definitions of both distance education and distance education students. As Schrum (1998) indicates: "Traditional distance learning was based on passive media (paper, audio and video broadcast) and was frequently conducted with each learner corresponding only with an instructor (p. 54). Web-based courses, which often incorporate various types of video, audio and interactive computer conferencing, along with site visits and print materials, are now routinely offered to students who may, or may not, be physically distant from the campus environment. Students learning at a distance are increasingly those who could readily come on campus but who, for temporal or convenience reasons, choose to access learning opportunities from their homes or workplaces. This has changed the whole dynamic of how distance education has been conceptualized.

DELIMITATIONS

In approaching the question of how synchronous discussion can be best integrated into a distance program, I am specifically interested in the

experience of the students within the discussion group and the relationships, or lack thereof, that are formed. As such, I have not attempted to evaluate the actual technology that is used to facilitate the synchronous conference. I did this while recognizing that benefit could be derived from an evaluation of the various types of conferencing systems available.

The implementation of computer conferencing in distance, or non-distance settings, has focused primarily on the use of asynchronous discussion modes. It is, therefore, difficult to find courses that currently incorporate synchronous discussion groups as part of the curriculum. Those that do, often make use of MOOs and/or MUDs through which synchronous discussions can take place. These domains, however, involve more than discussion in that they bring the participant into a "virtual world" where imagination and exploration can be as important as the discussion itself. This study has focused on a discussion carried out using the FirstClass Client program which allows for a simple text-based synchronous discussion format and, therefore, did not attempt to consider the experience of synchronous discussion within a MOO or MUD.

LIMITATIONS

As previously suggested, the use of synchronous discussion in formal courses is limited in general, but particularly at the university selected for this study. Because it has not been widely used, it was difficult to find individuals

who had this experience. Therefore, to conduct this study, I asked instructors of distance courses at the University to incorporate synchronous discussion activities into their courses, and I subsequently used those participants to evaluate the effectiveness of the synchronous discussion. Some of these students have therefore had limited exposure to this type of conferencing.

ASSUMPTIONS

From a sociological point of view, I look at the organization of societal institutions from a conflict, or critical theory perspective. As such, all institutions must be seen in relation to the dominant power structure of the society that forms and controls them. Technology, and its use within these institutions and structures, should also be considered within this framework as it is not created, nor employed separately from the society within which it exists. In his book Progress without people, David Noble (1995) reflects on the development of technology by asserting that:

> ...we see that it [technology] is not some abstractly rational enterprise with an internal logic all its own, but rather a human effort that reflects at every turn the relations of power in society. This is the case for both the technical scientific "screen" and the economic "screen" alike, as we shall see. (p. 72)

Therefore, I do not come to this research with the belief that technologies are neutral tools, with the innate potential to be used for either harm or good. Rather, I am more accepting of the notion that most technologies are introduced with an inherent purpose and intent, more often than not, of those

who control the means of production. As Langdon Winner (1989) asserts in The whale and the reactor:

> In our accustomed way of thinking technologies are seen as neutral tools that can be used well or poorly, for good, evil, or something in between. But we usually do not stop to inquire whether a given device might have been designed and built in such a way that it produces a set of consequences logically and temporally 'prior to any of its professed uses'. (p. 25)

By not assuming that any given technology is neutral, we are compelled to view all technologies, and their uses, from a critical perspective.

Given my philosophical orientation, I view social transformation as being one of the primary goals of adult education. Within this framework, the use of dialogue as a communicative and educative technique, is essential. As a result, in evaluating instructional tools, it is important not to minimize the relationship between content and methodology. From this perspective then, it becomes particularly interesting to look at individual communication tools for their ability to facilitate, in some way, a dialogue between students and instructors, thereby enhancing the possibilities for the creation of an educational environment within which critical enquiry can take place.

My findings in this research provide some insight into the ability of synchronous conferencing to allow for a dialogic approach to education. In addition, the contributions of the learners involved in this research have allowed me to gain a richer and deeper understanding of the ways in which students interact within a synchronous environment and the value they place

on this type of conferencing activity. Beyond these insights, the participants provide numerous suggestions regarding the best use of synchronous conferencing activities. This led me to include a series of recommendations which I hope will guide course designers, developers and instructors in making the best use of synchronous conferencing activities in their courses.

STRUCTURE OF THE REPORT

Over the course of this research project I have spent many hours attempting to reconcile my feelings about the presentation of my material. In taking a critical approach to the use of technology in education I have focused much of my energy on a literature that challenges the assumptions and conclusions made by those who champion the new technologies in education, and in society in general. Scholars in various disciplines including economics, political science, sociology, psychology, and environmental studies, advise us to approach technology with caution and scepticism, refusing to allow it to permeate every aspect of our lives. I have found many of their arguments to be compelling and have empathised with the sense of urgency, in much of the literature, to have this message heard. The thinking seems to be that, if enough people can be reached and made to understand the potential negative effects the continued assimilation of technology may bring, perhaps a detour can be imposed on the technological "highway" which would guide us to a more gentle and sustainable future.

Awkwardly, this thinking was very much in conflict with the intent and purpose of my thesis question. After all, why would I seek to determine how to do well what perhaps, I thought, shouldn't be done at all? I found myself fluctuating between letting go of the critical perspective to my work in favour of the practical, and abandoning the practical in order to allow myself the luxury of a purely critical approach. But as I struggled with this conflict and continued to collect and analyze my data, I slowly began to realize that the way out of my dilemma was to change the view I had accepted of my work. Rather than separating the two entities I had created for myself, I could attempt to bring them together. I began to see a way to weave the story that was being told by the students, through the transcripts and reflections I had collected from them, with the literature, both critical and uncritical, that I had used to guide my understanding of the research. My work could best be viewed as a tapestry that required me to bring together the different perspectives I had found in undertaking this research project. And like all tapestries, this one too would have different colours and sizes of thread, some critical some not critical, but all brought together in an effort to create a more complete picture; one with the depth and texture that brings people to look at it, think about it, and be interested enough to take away some meaning for themselves.

I came also to understand that this new way of looking at my research reflected my own ambiguous position regarding distance education, as well as the feelings and comments of the student participants in the research study. Working in the field of distance education requires some commitment

to a future which implicitly supports the increased integration of technology into the daily lives of individuals. While a large part of me abhors the complacency that surrounds the acceptance of this phenomenon, I have also witnessed the benefits that result from the potential to introduce a collaborative, educational environment into peoples' lives. Some of the students involved in the program I studied would have few opportunities to access a collaborative, higher education, degree granting program, thus limiting their chance to be involved in accredited learning situations where both personal and career growth can be realized. And while many of the students recognized that technology was providing them with a unique opportunity to communicate with other students and with their instructors, they were not blind to the disadvantages, and the adjustments that were required of them, in this learning environment. With the realization that I could no longer polarize my perspectives on my research, I was able to build the frame I needed to try to skillfully bring the threads of the story together.

My analysis of the data I received from the students in the program resulted in the identification of a number of themes that were reflected in the literature on computer-mediated communication as well as in the critical literature on technology in education and in society. For this reason, I decided to structure the thesis around the themes of "Collaboration and Community", "Making Meaning", and "Technological Determinants". Chapter two is devoted to a review of the literature on synchronous computer conferencing, focussing when possible, on the themes identified by the participants in the

study. In Chapter three, I outline my methodology. A report and analysis of the data are found in Chapter four. In Chapter five I again look to the data as a way of assessing the use of synchronous conferencing in contributing to the development of on-line dialogue and discussion. In addition, implications for practice, in the form of recommended uses of synchronous discussion, are made. A brief, concluding discussion considers some of the critical issues associated with the implementation of technology in education.

Chapter 2

Review of the Literature

INTRODUCTION

While a great deal has been written about the implementation and use of asynchronous computer conferencing in distributed, on-line, formal university and college courses, (Berge 1996; Bullen, 1999; Collins, 1998; Eastmond, 1996) far less attention has been paid to synchronous conferencing (Murphy & Collins, 1997). The "any time, any place" feature that asynchronous conferencing provides for students has clearly been perceived as a distinct advantage, temporally and cognitively with respect to learning styles, and has contributed significantly to its adoption as the communication tool of choice in many on-line courses (Berge,1996; Bullen,1999; Harasim, Hiltz, Teles, & Turoff, 1992; Higgins, 1991). By its very nature, asynchronous computer conferencing provides students the opportunity to read, reflect and then respond, often enhancing the quality and depth of discussion beyond what would actually take place in a face-to-face learning environment. Students tend to spend additional time formulating their responses to questions and comments, recognizing that their written statements are likely to receive more attention and scrutiny than remarks they make verbally in the classroom. (Personal conversation with K. Ward, January, 2000.). As well, the potential that asynchronous conferencing provides in building

collaborative learning communities contributes to the enthusiastic response it receives from on-line instructors and designers (Bullen, 1999; Harasim, 1989).

It is obvious that synchronous conferencing removes the "any time" advantage from distributed and alternate modes of education. In order to interact, students and instructors must be prepared to come "on-line" at a pre-set time. They also must be able to type, read, and respond quickly if they hope to keep up with the inherently fast pace of an on-line synchronous discussion. In turn, the rapid pace of the discussion limits the amount of time available for reflective thought and writing and can create, what appears at least on the surface to be, a chaotic discourse with various conversations crossing over one another. In their recent work on building community in cyberspace, Palloff and Pratt (1999) summarize what they perceive to be the disadvantages of synchronous communication.

> The challenge of conducting a synchronous meeting or seminar is to coordinate time with a dispersed group and to facilitate in such a way that all "voices" are heard. Although many groups ask for the ability to have synchronous discussion (chat capability), we find that it rarely allows for productive discussion or participation and frequently disintegrates into simple one-line contributions of minimal depth. It can replicate the face-to-face classroom in that the participant who is the fastest typist will probably contribute the greatest amount to the discussion, thus becoming the "loudest voice" in the group. Additionally, contributions may end up out of synch; a participant may respond to a comment made several lines earlier but be unable to post that response immediately due to the number of people posting or the speed of the connection to the discussion.
>
> If the group is internationally distributed, time differences become critical, as does the impact of culture on communication. (p. 47)

These concerns are not uncommon among instructors at the university and college levels, who have dismissed the usefulness of synchronous conferencing or "chat" as it is better known. In a March 17, 1999 post to the NODE forum, Jeff Cooper writes:

> Chat tends to connote idle banter, which feeds an atmosphere of non-importance surrounding chat as an educational tool. Furthermore, chat suffers from notoriety as unsafe havens for students (especially those under 18) to frequent. Although both of the above criticisms may be argued against...overall these environments do not warm the minds and hearts of most educators as useful tools. So much the pity, since they can be an invaluable resource, permitting real time team teaching and collaboration.

Unfortunately, most often the use of synchronous and asynchronous communication is juxtaposed and, in so doing, on-line course developers and instructors fail to recognize the complementary nature that synchronous and asynchronous forms of communication can play within an adult education environment. The literature reflects the concerns that many instructors have, but also indicates that with careful use synchronous conferencing can, and perhaps should, play a role within alternate delivery (McIsaac & Ralston, 1996). And, as Mark E. Chernin writes:

> It seems to me as an educator of post graduate, adult professionals, real-time chat and asynchronous models offer the best of both worlds in that the immediacy of chat helps maintain motivation and involvement where as the discussion portion allows for more thoughtful reflection of complex issues. (posted to the NODE forum March 19, 1999)

Bump (1990) goes as far as suggesting that it is worthwhile to investigate the assumption that "students prefer the new real time CACD programs to the old electronic mail techniques" (p. 51). While the literature on synchronous

computer - mediated conferencing in formal adult education settings remains somewhat scarce, what does exist provides insight into how students experience a synchronous "chat" environment and the advantages and disadvantages of using synchronous computer conferencing as a learning tool. In particular, this literature review will focus on three areas; the technological determinants inherent in synchronous conferencing; cohesion in synchronous conferencing and its impact on mutual understanding; and the potential for affective communications in a synchronous environment and its contribution to building community. The importance of investigating this communication domain from the students' perspective should be emphasized because synchronicity, in its many incarnations, has recently been heralded by Cushing Anderson, a senior market analyst who tracks the development of learning technologies for International Data Corporation, as the "hottest growth area for web-based training" (Barron, 2000, p. 1). In addition, there now appears to be a move towards synchronous technologies in formal education by educators like Robin Mason, who have traditionally been adherents of asynchronous systems. In a recent review of an Open University on-line course, she states:

> We plan to try new types of activities with both of the forms of real time media, [text-based and real-time audio] as they offer different potential. We are convinced of the value of synchronous interaction (Mason, 1997); it is now a matter of using it well and working in tandem with available technologies. (Mason, 1999, p. 11)

TECHNOLOGICAL DETERMINANTS

It is clear the introduction of any technology changes the way in which people interact with their surroundings (Meyrowitz, 1985). The advent of the automobile led to the development of the highway system, which not only affected people's method of transportation, but also influenced the ways in which communities evolved and the spatial relationships between work and home (Noble, 1995). That the invention and subsequent common usage of print, electronic media such as radio and television, and telecommunications profoundly altered social relationships is rarely contested. And few would argue that, in perhaps exponential ways, the proliferation and almost universal acceptance of computer technologies, in a relatively short timeframe, has had an intense impact on society and the relationships therein. So, it would be naive to assume that any new technology could take its place within an educational setting without influencing the ways in which teaching and learning takes place. What remains is to examine how educational activities are affected, the perceptions and response of those who are affected by the change, and the extent to which a given technology requires learners and instructors to accommodate its demands and idiosyncrasies. The literature points to some of the ways in which synchronous conferencing requires that learning and teaching adjustments be made.

Written Conversation

Somewhere between face-to-face discussion and asynchronous computer communications, lies synchronous conferencing or "chat". While not allowing participants the luxury of seeing, talking to and hearing each other, it does provide an environment in which they are able to share ideas and thoughts with an immediacy similar to that enjoyed in a classroom. A primary difference is the requirement that all of what needs to be "said" must be typed out on a computer keyboard. As one "sends" out their messages, others are able to read and respond, and so the "conversation" is carried on. But this type of exchange is very different from what occurs in the classroom where electronic technology does not serve as an intermediary in the dialogue. And it requires of students the development of some very different skills. As Christine Spratt (1999) remarks in a NODE chat:

> What interests me is the way we all sit here bashing our keyboards telling ourselves we are "chatting" when we are really writing text! What are the implications of this for students who may not be as comfortable with the written word as we are?

In a synchronous learning environment, speed and writing skills play a much greater role in determining whether a student will be "heard" than they do in a more conventional classroom discussion. These skills can and do affect the number and length of contributions made by individual students (Bump, 1991; Lundstrom, 1995; Murphy & Collins, 1997).

Speed of Response

Synchronous discussions are carried out at a very quick pace. After one person types and sends a contribution, all others on-line read it and determine whether or not they will respond. This influences the "shape" of the conversations (Baym, 1998). For the conversation to maintain momentum, interactions must take place in a timely manner. Lundstrom (1995), who studied the use of "talkers" (the term that was used to denote the "chat" software used) as a possible learning enhancement technique for ESL/EFL students states:

> If it is the case, as Blanton (1990) suggests, that the medium shapes the message, nowhere is that more true than in synchronous CMC i.e. talkers. Spontaneity, originality, cleverness, and emotions all need to be conveyed at a pace similar to face-to-face communication. In other words, speed....matters". (p.11)

This becomes problematic, and a communicative disadvantage, for participants who lack proficient typing skills. Bump (1991) found that:

> One of the most serious disadvantages of computer-assisted discussion is the reliance on keyboarding, a much less widespread skill than speaking...The graduate students, who tended to be better typists, did not regard this as an important disadvantage, though even these good typists spoke more quickly than they could type. (p. 60)

While those students with good typing skills may find the need for speed to be inconvenient, the consequences for those without this ability are much more severe. In an on-line environment that depends on speed, students who cannot keep up become "non-participants" leaving the floor to be dominated by the good typists. One student's comments, relayed to the

Node by Laurel Guymer (1999), provide some insight to the feelings and experience of students who are, effectively, left out of the conversation.

> "Dear W...I became fairly bored when I couldn't keep track of where things were going and found that I type to (sic) slow to participate in the conversations before the topics had changed. I do believe that if there was somebody keeping us all on track it would work a lot better (this is because I would have time to type a comment before it became irrelevant) and more people could participate rather than the few who dominated the first tute". (p. 11)

In effect, the need to obtain a skill, in this case typing speed, which is unrelated to the cognitive skills that would normally be required of post-secondary students, is dictated by the technological medium used to mediate the communication process. And while some students may have the ability to improve their typing skills, others, (i.e. those who have disabilities that may limit their capacity to do so), may have no choice but to remain on the sidelines.

In addition to being skilled typists, participants in synchronous communications must have the ability to write, read and comprehend quickly. On the surface, synchronous communications can seem to be somewhat chaotic as various layers of conversation appear almost randomly on the screen. Where, in a traditional classroom, students will normally wait their turn to speak and all proceed in a rather orderly fashion, there is no such requirement in synchronous CMC (Johnson, 1995). As individuals read the information that scrolls onto their screens, they can choose to respond to one, or many of the comments that appear. However, during the time it takes for them to formulate, write and send their response, several others may

appear on the screen, literally distancing their words from those to which they were intended to respond. For the writer, the necessity for speed of response becomes apparent. For the reader, the ability to piece together fragments of thought becomes a skill that must be acquired. As Elizabeth Reid (1991) found in her study of Internet Relay Chat:

> Speed of response and wit are the stuff of popularity and community on IRC. The Internet relays chat, and such social endeavor demands speed of thought - witty replies and keyboard savior faire blend into stream-of consciousness interaction that valorizes shortness of response time, ingenuity and ingenuousness in the presentation of statements. The person who cannot fulfil these requirements - who is a slow typist, who demands time to reflect before responding, will be disadvantaged. (p. 17)

While the ends of the conversation in a more academic setting may be somewhat different from those that Reid experienced in her IRC study, the means of communication remain the same and demand of participants similar cognitive and practical abilities.

The written form of the conversations is also shaped by the requirement for speed. Participants in a synchronous discussion have no means of determining what is happening at the other end of the line. Once they submit their comments to the group, they must sit and wait for a response. The time interval between responses is known as "lag" time and, for those involved in the discussion, it is somewhat like being in a communication vacuum. For this reason, experienced synchronous communicators recognize the need to quickly transmit their contributions, and in attempting to do so, responses must be kept short. Lundstrom (1995) found that both the technical

limitations of the "talker" software (such things as character limits per line and line wrap allowances) and the "requirement for speed further dictates the length of each turn" (p. 11).

For good writers, synchronous environments can become a place where they are able to express thoughts and feelings that would be left unsaid in a traditional classroom. A student in Bump's (1990) study remarks:

> I feel like in [INTERCHANGE sessions] I really expressed my true opinions...really got into the material and the discussions a lot more so than during regular class times. Also, I enjoy writing. Not papers and essays and stuff like that, but I do enjoy expressing my feelings and opinions in this manner. (p. 54)

Their ability to accommodate the demands of the technology makes this type of interaction process one in which they feel welcome and fully prepared to participate. In class, this advantage may be afforded to those who are better able to express themselves verbally and who are confident speaking in front of others. However, as Angela Goddard reflects during the Node forum on synchronous learning (1999),

> It's vesry clear to me that 'chat' privileges good writers, and that we haven't thought enough about the literative nature of this medium. This has huge implications for issues of access and competence.

While some advocates of on-line learning talk about the potential for increased rates of participation by students who are shy or otherwise uncomfortable speaking in classrooms (Harasim et al., 1995; Paulsen, 1995) in reality, the technological demands that are placed on participants in a

synchronous discussion may simply be trading off one skill set against another.

Demands on Time

Because synchronous communication is, in fact, written conversation occurring in "real time", it requires that students be available and on-line at a specific time. As many students who undertake distance or distributed education programs do so because of the temporal flexibility they afford, the need to connect at a specified time can be problematic. This problem becomes compounded when dealing with students living in different time zones and significant inconveniences can result (Murphy & Collins,1997a ; Palloff & Pratt, 1999). One of the primary reasons that synchronous conferencing is often dismissed by instructors and on-line course developers, is its inability to meet the "any time, any place" advantage of online education programming. Not only is this reasoning reflected throughout the literature, it is echoed at formal conferences and in casual conversations about on-line learning. It should be noted however, that while there may be an inconvenience to time specific activities, they can also provide students with immediate access to each other, motivation, connectivity and an increased sense of presence and community which, in some ways, counterbalance the demands on time (Mason, date unknown; Murphy & Collins, 1997a; Suler, 2000).

In addition, the ability to be on-line is often dependent on system reliability and accessibility. Students can become frustrated knowing they are missing out on a "real time" discussion due to system failures or their inability to access their ISP (Lundstrom, 1995). Concerns about accessibility for traditionally excluded groups are compounded when there is little flexibility surrounding the necessity to connect. Whereas arguments for access through sources other than personal ownership of computers can be made within a temporally flexible learning schedule, i.e. access through libraries, community learning centres, or workplaces, these options become more problematic in a time controlled situation. Gorard and Selwyn (1999) address the impact of cost on participation when they state:

> Where facilities are provided institutionally free at the point of delivery (in libraries perhaps), the opportunity costs and the problems of transport and other institutional barriers remain. (p. 526)

By incorporating synchronous conferencing into the design of a course, one may be implicitly constructing barriers for those who do not have easy access to the required technologies. This would be less likely to be the case for those in asynchronous discussions where time is not of the essence.

On the other hand, by virtue of the fact that learners are together at the same time, they are better able to present and solve problems in a timely manner. McIsaac and Ralston (1996) report "Problems that arose after the first week were answered during synchronous chat sessions" (p.2). These researchers also found that students were more likely to post questions of an "immediate nature" to a synchronous conference than they were to an asynchronous

one. Murphy and Collins (1997) also cite the ability to "present timely issues" as being a benefit of the synchronous format.

While all technologies require some degree of accommodation, the skills needed to make good use of any given technological tool can be quite different. In the case of synchronous computer conferencing, very specific requirements in the areas of typing abilities, speed of response and time constraints are demanded and instructors who incorporate synchronous activities in their courses should recognize how the unique technological determinants of synchronous computer conferencing can impact on students and their ability to participate.

COHESION AND MUTUAL UNDERSTANDING

Underlying the adoption of computer conferencing systems in educational settings is the belief they provide a mechanism by which learners can connect with each other and with their instructors through discussion and dialogue. These communicative interactions are intended to assist learners in clarifying their understandings of the concepts and ideas presented to them and in the social construction of knowledge (Carrier & Schofield, 1991; Harasim, 1989; McConnell, 1992; Murphy & Collins, 1997). Early adopters of CMC were quick to point out the potential for collaborative learning opportunities within computer mediated conferencing environments. In

identifying the CMC environment as "a domain for collaborative learning"

Harasim (1989) states:

> The on-line environment is particularly appropriate for collaborative learning approaches which emphasise group interaction. Much more than a technical device for exchanging information, computer conferencing facilitates the sharing of knowledge and understanding among members of a group who are not working together at the same time or place. (p. 52)

However, most of the research undertaken is based on experiences and findings with asynchronous computer communications. And, as has been previously indicated, participants using asynchronous CMC have the opportunity to read, reflect and respond at their leisure, thereby increasing the chances for the development of a cohesive and connected interchange where common understandings can emerge.

Interactions in synchronous conferences however, are of a very different nature, and the development of cohesive conversations that result in shared understandings can be more problematic. As Murphy and Collins (1997) suggest:

> The design of most forms of IRC software is such that multiple, disjointed conversational threads can quickly develop as various members of the group form smaller conversational groups, each focused on their own topic and ignoring, or only intermittently joining in others. This may result in conversational chaos. (p. 3)

For those who would argue that transformative education is a primary goal of adult education, the incorporation of communication mechanisms which lend themselves to the development of dialogic interactions becomes critically important, for this interaction lies at the heart of what they would consider to

be responsible practice. Michael Collins (1991), in his book Adult Education as Vocation, suggests that:

> Communicative action describes an ideal, though conceivably achievable, group learning experience where participants put forward their own views on the problem at hand, listen carefully and respectfully to those of others, and seriously examine all relevantly identified information introduced to the situation. It does not take the form of a debate, or the mere weighing of pros and cons. The process is more rational and democratic – a kind of on-going, thoughtful conversation...Communicative action, then, represents a worthwhile state of affairs that adult educators can seek to achieve in a wide variety of contexts. (p. 12)

Without the ability to engage in cohesive and meaningful conversation, adults cannot engage in communicative action. But is it realistic to expect adult learners to develop this type of exchange within a synchronous computer conference or are synchronous conferences destined to remain, at best, as adjunct course tools used primarily for social and incidental interaction? The literature on synchronous conferencing recognizes the issues related to maintaining cohesive interactions within this type of communication and looks at ways in which participants create environments where mutual understandings can emerge.

Establishing Order

For the uninitiated, participating in an on-line synchronous conference can be a daunting experience. As Murphy and Collins (1997) indicate, synchronous conversations do not inherently occur in an orderly fashion, and can in fact, end up appearing to be quite chaotic. They describe the outcome of one instructor's first chat experience:

> During her very first online chat session, the instructor encouraged the students to contribute to the topic without waiting for each other (i.e., taking turns). Without any protocol other than the "netiquette" explained by Mason (1991), the students made off-task remarks, used acronyms and other text-based shortcuts, occasionally reprimanded each other, and turned what was intended as an instructional event into conversational chaos. (p. 11)

Clearly, this type of conversational environment does not lend itself to the development of cohesive, scholarly discussions and could rightfully be dismissed as an unproductive use of learning time. In addition to the problems cited by Murphy and Collins (1997), the literature suggests that time lags, typographical errors, the lack of non-verbal cues, the loss of environmental context, simultaneous discussions that cross-over topics, and unconventional use of language can contribute to the non - cohesive nature of synchronous discussions. (Bump, 1990; Lundstom, 1995; Palloff & Pratt, 1999; Reid, 1991). However, there is evidence in the literature that instructors, and students in particular, develop methods and conventions to impose order and structure on the conversations thus turning the medium into one which allows for the development of coherent discussions (Johnson, 1995; Lundstrom, 1995; Murphy & Collins, 1997). And while initial synchronous sessions were often found to be confusing and chaotic (Murphy & Collins, 1997), studies indicate that students learn early in the process to implement various techniques that increase mutual understanding. Johnson (1995) found that:

> ...students were indeed capable of choreographing the discussion to suit their needs, rather than those of the teacher. Student participants appear to have been free to nominate, select, and pursue topics unfettered by the spatial-temporal limitations of the "floor," and discussion threads were developed by dyads, triads, and other

> configurations as participants deemed desirable. Furthermore, the students made consistent, repeated use of linguistic ties to previous comments, strategies which worked to develop and maintain cohesion. (p. 26)

This ability to create order out of potential chaos, is echoed by Murphy and Collins (1997):

> The courses from which the IEC transcripts for this paper were taken are oriented by constructivist learning principles, so communication may be largely among students as peers who learn and teach one another on-line as they strive to increase their understanding of one another. To facilitate this understanding, the students developed communications conventions to structure their synchronous conversation, reduce the cognitive load, and minimize misunderstandings. (p. 9)

A number of factors inherent to synchronous conferencing, contribute to its potentially chaotic outcome. Unlike face-to-face conversations, participants in synchronous conferences experience a level of isolation that prevents them from determining whether other participants will respond to comments submitted to the conference. In addition, the time lag created by the need to type all contributions makes it difficult to know when a response might appear or to control the chronology of the responses. Bump (1990) talks about the consequent lack of coherence that is caused by these factors.

> ...even in a small conference there has been some frustration about the "time delay - unlike verbal discussion, everyone can get their word in, but by the time they do the moment may be gone - it's not relevant anymore." This weakens coherence - "conversations so easily go off on tangents" - and in this respect may make the program seem inferior to speaking.(p. 61)

Because of the lack of physical cues there is no natural or easy way to determine who has the floor or which question or comment will be addressed.

As a result, "Turn-taking in synchronous communication is problematical as there are no observable kinesthetic or para - verbal cues to indicate when someone wants to enter the conversation or to change the subject" (Murphy & Collins, 1997, p. 6).

To alleviate the lack of structure, Murphy and Collins(1997) indicate that subsequent chats in the courses in their study, were moderated by either the instructor or a student to ensure that they didn't "trip over each other". Ellipses were used to allow a student to send a partial comment while indicating there was more to come. This use of ellipses helped to alleviate the time lag that was otherwise experienced while waiting for a long comment to be sent. In addition, students in several of the studies developed ways to connect responses in order to avoid confusion. Murphy and Collins (1997) report students used keywords or personal names to link comments, while those in Johnson's (1995) study used anaphoric reference, adjacency pairs and direct address as means to create cohesion in otherwise temporally random responses.

Providing Clarity

While the structure of the responses can obscure meaning and cohesion within a synchronous conference, the actual writing can also cause misunderstandings to occur between conference participants. By virtue of the speed at which sentences must be formulated and transmitted, grammar and spelling errors are frequent in this type of communication. Thoughts and

ideas must be organized quickly and constructed into relatively short sentences to increase the speed of transmission. Add to this the lack of non-verbal communication cues and it becomes evident that the potential for misinterpretation of intended meaning is high. Participants in synchronous conferences have however, found ways to minimize these misunderstandings and increase the clarity of their messages.

Students in synchronous conferences recognize that the requirement for speed in this medium affects their use of language to an extent that ultimately, obscures the meaning of their message (Lundstrom, 1995; Murphy & Collins, 1997; Reid, 1991). Finding ways to abbreviate words and phrases can decrease the number of mistakes that are made within a message as well as the time it takes to type the words. Baym (1998), Murphy and Collins (1997) and Lundstrom (1995) all report the use of abbreviations as standard practice in participant interactions. In their studies, participants quickly developed abbreviations and shared understandings for commonly used phrases. These include: Q&A = question and answer; btw = by the way; brb = be right back; and lol = laugh out loud. Using fewer words and keystrokes for these phrases alleviates some of the time pressures, and allows students to focus their efforts on ensuring that other parts of their message are accurate.

The lack of non-verbal behaviours, which is an inherent characteristic of a text-based communication environment, especially one in which little time is

available to review and reflect on what is written, can also lead to misunderstandings among participants. Without voice inflections, facial expressions, or other visual ways of expressing oneself, intended meanings can become misinterpreted and result in unintended communications. Reid (1991) states:

> Much of our understandings of linguistic meaning and social context are derived from non-verbal cues. With these unavailable, it remains for users of computer-mediated communication to create methods of compensating for the lack. As Hiltz and Turoff have reported, computer conferees have developed ways of sending computerized screams, hugs and kisses. This is apparent on IRC. (p. 15)

Various methods have been devised to replace the non-verbal cues that would normally be experienced in a face-to-face conversation. Emoticons, often referred to as "smileys" (Baym, 1995; Reid, 1991) are sometimes attached to text in order to assist the reader in understanding the intent of a message. Most commonly used are:

:-) for humour, laughter, friendliness

:- (for sadness, anger, upset

;-) for {ha ha only serious}

: - / for 'wry face' (Reid, 1991, p. 33)

This "art" becomes useful when trying to ensure that, for example, a joke is taken as such and not misunderstood. Voice inflections are often conveyed by placing asterisks around a word that is meant to be emphasised or perhaps, is being used sarcastically. Words or sentences sent in all capital letters are interpreted as yelling or being said in an angry manner. Punctuation, such as exclamation marks, are also used to convey meaning.

(Murphy & Collins, 1997; Reid, 1991). Actions, such as "she stands up to get attention" are conveyed by placing the words within brackets or asterisks thereby creating a physical dimension to the conversation (Reid, 1991). Agostinho, Lefoe and Hedberg (1997) and Murphy and Collins (1997) report that students in their studies used specific explanations to minimise misunderstandings. In addition, students in the latter study employed metaphors to help clarify meanings of statements that were questioned. Finally, participants in synchronous conferences are able to obtain a written transcript of their conversations, allowing them time to review the discourse and think about the contributions that have been made. (Bump, 1990)[1] This written record can help in increasing their understanding and enhancing their learning.

> The transcript allows everybody to see what students in other conferences are talking about and makes class discussion much more meaningful in some ways. It encourages students to think seriously about significant contributions which can be used as the kernels of future essays, for they know in advance they will have transcripts of their contributions. (Bump, 1991, p. 56)

All of these conventions are adopted as means to create and enhance understanding and shared meaning within a entirely textual environment and, by doing so, expand its potential to become a place where coherent conversations and possibly, dialogues can take place.

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[1] Not all synchronous conferencing tools, including FirstClass, automatically create a written transcript from the conferencing session. However, students can be asked to save a copy of the transcript in order for it to be available for review once the on-line activity has been completed.

COLLABORATION AND COMMUNITY

Developing mechanisms which enable cognitive understandings of on-line interactions provides participants with prerequisite tools to carry out conversations and dialogue. This ability to do so can, but does not necessarily, lead to a shared understanding of the concepts and ideas presented and to the development of an on-line learning community. Still, the potential to create an environment conducive to collaborative learning and the building of learning communities, is considered to be one of the primary advantages of on-line education (Harasim, et al., 1995; Palloff & Pratt, 1999). It is generally thought that the inclusion of computer-mediated conferences within a course provides students and instructors with the opportunity to communicate, and participate in ongoing discussions and dialogues focussed on the course materials and the learning needs of students. In addition, much of the literature would suggest that, within a CMC environment, opportunities for formal and informal collaboration between students and instructors, can be readily facilitated.

Quite early on in the development of on-line education, the ability to have students and instructors "connect" with each other to form a "virtual" community, was recognized. In 1993, Loughlin stated:

> Computer conferences allow interaction with other conference members in ways that, while somewhat limited by the text-based nature of the medium, still allows for the building of a sense of "virtual" community. ...One can dialog with kindred spirits having similar interests, skills and attitudes, when one is, in reality, isolated from one's peers. (Loughlin, 1993 as cited in Berge & Collins, 1993, p. 11)

This perceived advantage of on-line environments as providing a venue for the creation and development of learning communities wherein collaborative learning can take place, continues to be a central focus of those who promote the integration of computer mediated courses in both distance, and more recently, traditional on-campus, programming (Mason, 1998; Wegerif, 1998). Again however, much of the research that has led to these conclusions is based on the use of asynchronous conferencing. There are those who would contend that the use of synchronous conferences can decrease the sense of community that may have been built through asynchronous conferencing. In talking about the problems of coordinating synchronous activities with students in different time zones, Palloff and Pratt (1998) delineate a host of potential problems, and conclude that:

> Although these may seem like small, petty issues to some, they become critical when an instructor or a participant is asked to get up in the middle of the night to participate in a class discussion. Certainly, this would reduce the quality of participation and thus erode a developing sense of community in the group. (p. 47)

It remains important then, to look at whether synchronous conferencing can contribute to the development of a sense of community and connection within an adult learning environment. In addition, before determining that on-line environments can effectively be used for collaboration and the development of community, more attention needs to be paid as to what is meant by collaboration and community and how, in fact, they are created and encouraged on-line.

What is community on-line?

> The Internet is not a highway. "The Internet is more like a community, " says Linda Harasim. "Anyway, it's not a road going somewhere. That's why people are having trouble understanding it. It's a place." The first thing everyone types when they get connected is, "I'm here!" (Shaping Cyberspace, 1994, p.1)

And then what happens? While much of the literature on computer mediated communications lauds its ability to encourage and create community, only some of it attempts to define or explain what that actually means or how it impacts the learners. Wegerif (1998) identifies the importance of developing a sense of community among on-line learners as a prerequisite for satisfactory student on-line experiences and for collaborative learning to take place.

> Forming a sense of community, where people feel they will be treated sympathetically by their fellows, seems to be a necessary first step for collaborative learning. Without a feeling of community people are on their own, likely to be anxious, defensive and unwilling to take the risks involved in learning. (p. 48)

In his study, he found that students who did not cross the social "threshold" which made them feel a part of the learning community were less likely to complete the course, or to feel positive about the outcome of their learning experience.

Comstock and Fox (1995) have developed criteria which are useful in looking at how community can be created and maintained in an on-line environment and why it is important to do so. Essentially, they too see the development of

community as a prerequisite for collaborative learning. They assert that a group of individuals must first respect and trust each other before they are able to engage in effective, collaborative learning activities.

> Over the past three years we have learned the importance of creating boundaries and fostering caring relationships. We no longer see the personal chatting, social conversations and story telling that we and our students engage in on-line and during class breaks as taking away from the 'real business' of learning. Instead, we have come to recognize that collaborative learning is not possible unless and until a group of learners has reached a level of personal familiarity, intimacy and trust that will allow them to listen to each other with respect and understanding. For this reason, we are as interested in our computer conference to build personal relationships as we are for using it to discuss academic subject matter. (p. 4)

Further, they define learning communities as "where the members' primary purpose and identification with the community is for their own and their colleagues' learning (Fox, 1993)" (p. 4). But they acknowledge that the creation of an on-line community is not inherent to the technology and requires "more intentionality and skilled facilitation than we originally thought" (p. 5).

To this end, these researchers have identified three dimensions - boundaries, caring relationships and collaboration - as providing the basis for the formation of a genuine learning community. Encompassed within each of these dimensions are processes which serve to bring about community. Membership and participation are the processes required to create boundaries; personal conversations, stories and caring talk create caring relationships; and dialogue discussion and critical reflection are the basis for collaboration. (p.18) The implication then is that, beyond a cognitive

understanding of verbal interactions, there must be an affective dimension to on-line interactions for community building and collaborative learning to take place. We look again then to the literature for evidence that affective communications can take place within a synchronous computer conferencing environment.

Affective Communication in Synchronous Discussion

A review of the literature suggests that there is an affective dimension to the interactions that take place in synchronous computer conferences. These occur in a variety of ways. The use of emoticons[2] which as previously discussed adds to the cognitive clarity of written communications, also serve to replace non-verbal cues we have come to rely on in face-to-face conversations to convey emotion and affect. In her study of a synchronous discussion group related to soap operas, Nancy Baym (1998) found that:

> Rather than accepting the filtering out of social cues, CMC users invented, and continue to invent, new ones. Smiley faces, graphic icons built out of punctuation marks, are used for a variety of purposes often served by facial expressions or vocal intonations. (p. 153)

Reid (1991) and Murphy and Collins (1997) also report the use of emoticons, punctuation and other types of textual constructs as ways of communicating feelings and emotions within synchronous conversations. Agostinho, Lefoe

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[2] The term "emoticon" itself indicates an attempt to "emote" or add an emotional dimension through its use.

and Hedberg (1997) suggest that the informal nature of synchronous discussions enables users to inject humour thereby leading to increased "class bonding" (p. 7). Heppell & Ramondt (1998) found that, among its other advantages synchronous conferencing "...aid [s] in facilitating informal socializing and therefore increasing the sense of community..." (p. 12). In his comparison of nursing dyads using both synchronous and asynchronous computer conferencing systems, Higgins' (1991) third knowledge claim is:

> ...that greater mutual facilitation occurs in synchronous text-based CMC than in the asynchronous mode. This facilitation is reflected in verbal elements demonstrating attempts to establish interpersonal ease, support, understanding, and encouragement. (p. 129)

Finally, students in Bump's (1990) study found that students were comfortable expressing emotions within the synchronous INTERCHANGE program.

One reason that synchronous conferencing may be conducive to affective communication, is the concept of immediacy that exists in this medium. In his work on community and cyberspace, Richard Cutler (1995) suggests that "an understanding of the basis for community today includes: social space built out of information systems and expanded notions of presence" (p. 11). While this latter concept would include all forms of electronic communications, synchronous conferences provide the sense of immediacy and presence not found in asynchronous communications (Murphy & Collins, 1997a; Suler, 2000). When people interact synchronously, they are aware that there are other people connected, reading and reacting to their transmissions. For

some, this element of physical presence enhances the ability of the electronic medium to convey and elicit affective response. In their work examining student frustrations with web-based distance courses, Hara and Kling (1999) provide this student's response to a synchronous activity.

> I'd loved the MOO session. I felt like doing that, we're really sort of like a community. I was totally laughing, at my computer, laughing. It's so weird to laugh at the computer. But I was laughing because I really felt somebody's there talking. And I met a person that was kind of cold to me and asked me weird questions, and they never really answered my questions. That hurt, you know? So it's real feelings that were involved. It's kind of interesting. (personal communication, October 30). (p. 7-8)

Clearly, for some at least, there is room within synchronous conferences for affective communications to take place and ways to transmit these feelings through the medium.

CONCLUSION

There is evidence in the literature to suggest that the inclusion of synchronous conferences in on-line formal education courses is not unwarranted. While it can appear on the surface to be a difficult medium in which to organise and structure discussion, various mechanisms can be employed to increase both cognitive and affective understandings. By doing so, there is some potential to increase the feeling of connectedness and community among participants thereby opening the door to a more collaborative learning environment. At the same time, however, there are technological determinants unique to synchronous conferencing that must be considered prior to implementation as they can have significant impact on

individual participation and interaction. As with any technology, consideration should first be given to pedagogical needs, and determinations made as to the best ways to meet these needs. What the research suggests however, is that synchronous conferencing may bring added value to a web-based course and should be considered in the design process. Obtaining more information on students' perceptions and experiences of synchronous conferencing then, can assist us in making best use of this technology.

Chapter 3

Methodology

By examining student and instructor experiences with synchronous conferencing the intent of this research is to contribute to the development of on-line education by increasing educators' understanding of student responses to one method of computer conferencing. Seeking feedback from those who use the technology, I have gained some insight into both the advantages and disadvantages that synchronous conferencing brings to the learning environment. Studying the experiences of actively involved learners provided an opportunity to acknowledge what learners identify as the strengths and weakness of the technology. In so doing, a set of guidelines can be constructed and used when making decisions about integrating synchronous communications in on-line course development.

THEORETICAL RESEARCH PERSPECTIVE

In choosing a methodology for my research question I have drawn substantially on the work of Daniel Eastmond (1995) who conducted a study to investigate the experience of students using asynchronous computer conferencing in a formal, adult distance learning program. As my investigation of synchronous discussion parallels, in many ways, this study, I believe the adoption of the qualitative paradigm for this research is

appropriate. Computer conferencing is a relatively new phenomenon and, as such, is at the early stages of inquiry. There seems to be a shared opinion among those who study distance and distributed education, of the contribution that can be made to this field through the collection of qualitative data. In justifying her own use of qualitative research in a similar study to Eastmond's, Elizabeth Burge identifies:

> ...the current scarcity of qualitative studies on CC. Without such studies we cannot develop new and relevant concepts and hypothesis for consequent exploration". (1994, p. 22)

Eastmond himself, identifies a number of researchers in adult education who recognize the dearth of qualitative studies in this area and advocate that more be undertaken. This particular area of adult education is in its infancy in terms of theory building and, as such, is well placed at the qualitative end of the research continuum.

Bogden and Biklen (1992) suggest the goal of the qualitative researcher is:

> ...to better understand human behaviour and experience. They seek to grasp the processes by which people construct meaning and to describe what those meanings are. They use empirical observation because it is with concrete incidents of human behaviour that investigators can think more clearly and deeply about the human condition. (1992, p. 49)

The purpose of my research is to provide an exploratory analysis of student experiences with, and perceptions of, synchronous conferencing. I am not entering into this study with a set of hypotheses I wish to prove. Rather, I am attempting to obtain a better understanding of the world of synchronous computer conferencing and to learn more about the perceptions of those

involved in this type of learning. Given this objective, I have approached the research as an investigation or inquiry into the nature of this particular phenomenon. What I am seeking is a deeper understanding of the experience of relatively few participants and, as such, the research is congruent with the type of questions that are justifiably explored within the qualitative paradigm.

Eastmond (1995), in relating his approach to his research study, indicates his adoption of a "hybrid" methodology heavily influenced by a number of schools of thought. In so doing, he describes one of the influences, symbolic interaction, as a perspective that:

> ...holds that meaning resides in the shared interactions individuals and groups have about objects in their world. The primary purpose of research is to describe these meanings to the outside arena. (p.206)

As a beginner in the field of qualitative research, it is my hope that this study will contribute to a better understanding of synchronous discussion through the presentation and description of individual experiences.

DEFINING MY APPROACH TO THE RESEARCH

Within the qualitative paradigm, researchers draw on a number of approaches in an effort to address the questions they ask. In describing his methodology, Eastmond (1995) states:

> The methods I used for this book are qualitative, primarily based on those from the Chicago School of Sociology, which are heavily influenced by symbolic interaction (Blumer, 1969), with elements of feminist and postmodern (Bogdan & Biklen, 1992), ethnographic (Spradley, 1980) and grounded theory approaches (Glaser & Strauss, 1967).

It is difficult prior to entering the field, to "pin down" the exact way in which the data will be treated. Even now, after two years of working with these data, I find it hard to identify the qualitative research approach used to guide my study. At the start, I was perhaps more aware of the approaches that I wasn't taking than the one that I was. I have come to believe that an effective way of approaching my research question is to use the methodology described by Ely, Anzul, Friedman, Garner and Steinmetz (1991) in their work Doing qualitative research: Circles within circles. They too are hesitant to label their approach to qualitative study by providing one defining term. Rather, they suggest that there are "commonalities" which bind together the differing approaches to doing qualitative research.

> Underlying this collection of competing labels are certain commonalities that link them together – a network of underlying principles and philosophical beliefs that constitute a paradigm or world view. (p. 2)

Given the purpose of this study, to explore individual experience of synchronous conferencing, a combination of methodologies seemed appropriate. Having considered a number of alternatives within the qualitative paradigm, and most specifically having given careful consideration to ethnography and case study, I determined that this less defined approach allowed for the best fit, given the nature of my study and the needs as

researcher. Perhaps in explaining why I eliminated the former two choices I can help clarify my decision.

In considering the case study approach I determined I would examine a class in which synchronous discussion had been introduced as part of the course requirement. In looking more closely at my question however, I realized I was more interested in individual interactions with the technology rather than the interelatedness of the whole class with each other and, as a whole, with the technology. As an alternative, I could have considered a case study of one individual in the class but felt this would be a very restricted approach in a field with such a limited research history.

In terms of an ethnographic study, I felt the conditions of the setting were not conducive to this method of research. Traditionally, this approach required the researcher to become somewhat immersed in the culture of those being studied. While over time, the definition of a culture with respect to ethnographic studies has been considerably altered, I found it difficult to consider the setting within which I would be working to be conducive to an ethnographic study. To begin, my intention is to look at only one very specific aspect of a university course. The students in the course will participate through the computer because it is a requirement they do so. To label this simple interaction of individuals as a culture, with a set of shared beliefs and understandings, would be to stretch the limits of ethnography. Further, in returning to the question, I again realized that I was interested in

the phenomenon from the experience of the individual, not that of the class, or culture, as a whole.

In returning to Ely et. al. (1991) I felt comfortable with the characteristics they used to represent qualitative research. They report the following characteristics as identified by Sherman and Webb (1988):

1. Events can be understood adequately only if they are seen in context. Therefore, a qualitative researcher immerses her/himself in the setting.
2. The contexts of inquiry are not contrived; they are natural. Nothing is predefined or taken for granted.
3. Qualitative researchers want those who are studied to speak for themselves, to provide their perspectives in words and other actions. Therefore, qualitative research is an interactive process in which the persons studied teach the researcher about their lives.
4. Qualitative researchers attend to the experience as a whole, not as separate variables. The aim of qualitative research is to understand experience as unified.
5. qualitative methods are appropriate to the above statements. There is no one general method.
6. For many qualitative researchers, the process entails appraisal about what was studied. (p. 4)

I have tried to simply understand the experience of the individual to the phenomenon of synchronous discussion in adult learning and to let those who have had the experience speak to it. My goal, in the end, was simply to listen to the voices of those who were intimately involved, to identify from my own perspective the themes or threads that connected these voice, to acknowledge the concerns and issues that were raised by the participants and, to allow them to make recommendations that could provide others with some insights as to how synchronous computer conferencing might fit in their

own practice. And perhaps, this is as close as I will ever get to defining my approach to my research.

CONTEXT OF THE STUDY

This study was undertaken as one facet of a larger research project funded by the Office of Learning Techno2logies. Based on an action research model, the primary project culminated in a comprehensive report titled "Learning Technologies in Distance Education". One of the stated objectives of the research team was to:

> ...develop a network of action researchers throughout Alberta and the western region who are actively involved in relevant hands-on research focusing on approaches, strategies, and competencies needed to effectively use the Web, video conferencing , and computer conferencing in adult distance learning.

As a result, graduate students working in this area were invited to use the data generated through this project to further develop individual foci and breadth of understanding. Given my interest in synchronous computer conferencing, I requested to use the data generated by the students involved in this study to investigate this specific aspect of computer conferencing. As such, I became part of this secondary group of researchers. However, I make no claim to having adopted the action research model so clearly described in the larger study. As indicated in the study, an action research model consists of a number of steps, the first two described by Zuber-Skerritt as:

1. Plan – includes problem analysis and a strategic plan to identify appropriate strategies and interventions to rectify the problem.
2. Act – refers to the implementation on the strategic plan. (OLT, p. R-13)

While in the broader perspective, the researchers may have implemented the synchronous conferences as part of their strategic planning process, my approach remained more of an investigative and evaluative one.

The participants involved in this study were undertaking the completion of a B.Ed program in Adult Education through a major western university. All of the participants were enrolled in an outreach education program and did not live within commuting distance of the university. While small groups of students lived in the same town or city, most were also at a distance from each other. All students, however, had an opportunity to meet each other at three site visits which were integrated into the distance delivery program model. The concept of distance education used in this thesis therefore, reflects and incorporates these specific circumstances.

As part of the program, the university agreed to provide 10 courses that could be completed at a distance. Various technologies were used to facilitate the learning process including video, audio and computer conferencing, web-based course content, and site visits by the instructors. The students in the program provided permission to the researchers to utilize in their research projects, the electronic interactions generated in the courses. In addition, permission was sought and received by the instructor of the courses used in this particular aspect of the research, to allow for the inclusion of written reflections generated as part of the course requirements.

DATA COLLECTION

To obtain data for this study, an initial request was made to four instructors to include synchronous computer conferencing activities in their scheduled courses. Prior to the study, conferencing activities incorporated in the courses within the program were primarily of an asynchronous rather than a synchronous nature. While all four faculty members were receptive to the idea, two of them encouraged students to use the synchronous features to facilitate communication and collaborative activities but did not make its usage an integral part of their course design. The informal nature of the request, combined with the fact that capturing the results of the activities was not inherent to the system, made it difficult to accurately determine actual use by the students or obtain transcripts from synchronous activities that could be used for analysis.

The remaining two instructors built formal activities into their courses that required students to use the synchronous features of the conferencing system. They carefully instructed students on the mechanics of capturing the transcripts generated by their synchronous discussions, and asked students to write papers reflecting their experiences and feelings on both the synchronous and asynchronous activities included in the course. As there was a significant amount of synchronous activity carried out by these students, this study is based on the transcripts and reflection papers

obtained from the courses where the synchronous activities were a mandated part of the course.

Support for using written documents exclusively as the basis for research data can be found in the qualitative research literature. In describing the types of materials that researchers employ, Bogden and Biklen state:

> The quality of this type of material [subjects written words] varies. Some of the materials provide only some factual details such as the dates meetings occurred. Others serve as sources of rich descriptions of how people who produced the materials think about their world. Subject-produced data are employed as part of studies where the major thrust is participant observation or interviewing, although at times they are used exclusively. (p. 132)

There were two main reasons the students in these courses were not contacted for personal interviews. First, the synchronous transcripts and the reflections provided the type of data that was needed to address the questions that were being asked in the research. It was felt that the reflections, having been written shortly after the students experienced the synchronous conferences, provided a useful vehicle to gain insight into the thoughts and feelings they held towards their conferencing activities. The purpose of the reflections was not left open; students were instructed to focus their attention on their reactions to the synchronous and asynchronous conferences. The transcripts themselves added to the ways in which the researcher was able to access the students' thoughts and ideas through both interpretation of the events that occurred and through the direct address of the students within the forums. The written and electronic documents that were obtained appeared to contain open and honest statements regarding

synchronous conferencing and were reflective of both its positive and negative attributes.

Second, as has been previously indicated, this research data were generated as part of a larger OLT project. As such, the students had been contacted and requested to participate in a number of other data gathering interviews. On approving my research project, a request was made by the research leaders, to keep the data gathering as non-invasive as possible so as to not add to the many requests that were already being made to these students. Because the data in the documents supplied so much rich information, I determined that I could honour this request and proceed adequately with the data at hand.

PARTICIPANT PROFILE

The B.Ed and B.Ed/AD programs in which the research participants were enrolled, are designed to be professional development, rather than pre-service programs. A prerequisite to entry into either of these programs is a minimum of one year of teaching experience in an adult education capacity. In addition, either an undergraduate degree, or seven years of work experience in an area related to the teaching experience, is required. As a result of these prerequisites, the students in the program tend to be mature adults who have worked in the field of education defined in a broad sense. Many of them are instructors at community colleges, trainers in

organizations, or hold positions in government and community organizations involved in human resources development. Most have determined a need to obtain some kind of formal, teaching certification either at the request of their employer, or for personal career development purposes. On the whole, their goal is to remain in the field of adult education rather than enter the K-12 school system.

Two sections of a course focusing on distance learning were used in this study. The courses were held consecutively in the 1997 Spring and Summer intersessions, each over a six week period. The courses were team taught by two Ph.D candidates from the department who were resident at the university. In total, 35 students were enrolled in the courses; 17 in one and 18 in the other. While the overall ratio of male to female students was essentially 1:1, the composition of the classes was quite different. One of the courses comprised 5 males and 13 females, while the other had 12 males and 5 females. While no analysis will be made in this thesis regarding the differences in participation and experience based on gender, it would be an interesting consideration for future research.

In designing the course the instructors included activities that required the students to participate in both synchronous and asynchronous computer conferencing activities. In so doing, students were asked to replicate the activities in each of these modes. As an example, students were required to carry out a debate in an asynchronous conference and then to carry out a

similar debate in a synchronous conference. After each activity they were asked to write a short reflective piece describing and commenting on the experience. These short reflections were posted in the asynchronous conference and shared with all course participants. At the end of all the activities the students submitted a larger reflective assignment in which they undertook a comparison of the two types of computer conferences and commented on the benefits and drawbacks of each in relation to the instructional methods they used. These reflections were sent as electronic or mail documents directly to the instructor and were not shared with other members of the class.

GENERATING THE DATA

The conferencing software used in the courses for both asynchronous and synchronous interactions was FirstClass. Because of the nature of asynchronous conferences in FirstClass, there is no need to make any special efforts to log and save the postings to the conferences. These messages remain on the FirstClass server and are available to anyone with an access ID and password to the conferences. Synchronous conferences, on the other hand, are not recorded in FirstClass and must be saved by one of the participants in the conference. Students were provided with specific instructions on how to save their "chats" and post them within FirstClass. While a request was made for all students to do so at each chat, the importance of having the complete conference saved was impressed upon

the students. For this reason, a request was made to each group to appoint a particular student as responsible for saving the chat transcript. This student would ensure they were the first person in the chat and the last person out so that a complete transcript could be obtained. The chats were then posted within the asynchronous conferences or sent directly to the instructor. Some of the students compiled all of the group chats and submitted them with their final reflections. It is these transcripts, the initial short reflections made by each student, and final assignment reflections that were used to obtain the data for this study.

I think that I should note at this point, a development which I believe contributed in a significant way, to my work. Part way through my thesis program, I accepted a full-time position working with the same program that I was researching. What this meant, was that I began to live, on a daily basis, with the very work that I was looking at. On a day to day basis, I was made aware of the needs and concerns of both students and instructors involved in distance learning. I gained a better understanding of the dynamics of the program, and of the people involved in it. It was now my job to research and become aware of instructional approaches in on-line education; of what "worked" and of what did not. Through listserves, professional development activities, conferences, written literature, and personal conversations, my knowledge of the area continued to grow and develop. As a result, I believe I have integrated this learning into the data I have collected and, hopefully,

have used it to enhance my perceptions and interpretations rather than to distort them.

DATA ANALYSIS

My data were, essentially, provided to me as a package. Once the two courses were completed, I was given access to the synchronous and asynchronous transcripts as well as the written reflections. Until that time, I had been reading the literature on on-line learning, as well as the critical literature on technology in education and society in general. I had also located and reviewed what I could find on synchronous conferencing technologies and their use in an educational environment. At this point, I turned my attention to the participant data, guided by the work of Ely, et. al. (1991) in using their approach to the development of categories and themes. In Doing qualitative research: Circles within circles, Margot delineates the following steps in her data analysis process:

1. Study and re-study the raw data to develop detailed, intimate knowledge.
2. Note initial impressions
3. List tentative categories
4. Refine categories by examining the results of steps 2 and 3 and returning to the entire database of step 1.
5. Group data under the still-tentative categories and revise categories if needed.
6. Select verbatim narrative to link the raw data to the categories.
7. Study results of step 6 and revise if needed.
8. Write theme statements for each participant from my best attempt to speak from her/his point of view by linking data in and across categories.
9. Integrate findings about each person.
10. Compare findings for commonalities or patterns, differences and unique happenings. (p. 150)

While not all the steps in this process were applicable to the objectives of my study, I found following steps one through seven to be useful. It should be noted that, while I incorporated the seven steps into my analysis, I cannot claim that I did so in the orderly fashion that that a "step-by-step" process might imply. I will attempt to delineate the process however, the reader should note that some of the steps overlap with each other, while others may have been revisited at various times in the process.

Study and re-study the raw data: My first step was to download and print all of the identified documents. In each course, groups had been assigned to work together on the activities. A total of eight groups were identified and included in this research. Each of the groups undertook at least two synchronous conferences, while some engaged in additional, informal chats either with their whole group, or with selected members of their group. While not all of these transcripts were saved and submitted, a total of 33 synchronous conferences were logged and submitted to the researcher. The distribution among the groups ranged from 0 – 10 submissions.[3] Groups that submitted large numbers of transcripts were ones where individual members

[3] All of the groups undertook the synchronous activities. However, no transcripts could be found for one of the groups. This is likely a result of the group not saving and posting the transcripts to an asynchronous conference. Reflections on the synchronous activities were, however, received from this group.

decided to meet using the synchronous conferencing tool. In addition to these transcripts, 31 formal reflection papers and 21 informal reflections were reviewed.

I began by sorting the documents according to course and then by groups within each course. I started by reading all of the documents for one of the courses to get an overall impression of these data and the types of comments and feedback that were made. I then moved on to the second course and read those documents. I have since returned to the data numerous times in an effort to reacquaint myself with the actual comments and interactions that were recorded.

Note initial impressions: On first reading of the data, I was able to cull some overall impressions of the participants' reactions and feelings about synchronous conferencing. There were some definite, recurring themes that could be recognized and a very general understanding of likes and dislikes, strengths and weaknesses of the medium, and recommendations for future use that were held by the participants. Very general notes were made at this point to ensure that this overall perspective was not lost.

List tentative categories/group data: Once all the data had been reviewed, I focused my attention on the data that had been received from one of the courses. Going through these data more carefully this time, I grouped comments and phrases that appeared to be addressing similar types of circumstances. As an example, there were numbers of participants that made comments regarding the need for typing skills or the difficulties that

they found in scheduling times to come on-line. I created individual files and sorted the comments that appeared to "fit" together into them. As a result, by the end of this process I had grouped together several series of comments that could potentially be developed into individual categories. Reviewing each of the files, I attempted to label the groupings. I used this initial categorization to guide me through my review of the data from the second course.

Refine categories/develop themes: On reviewing the second group of data, I found that many of the same categories identified in the first group were addressed. I discovered however, that I had added at least two categories that had not been previously identified by the first group. Being open to the addition and revision of initial categories is an important part of the data analysis. Ely et al.(1991) states:

> Making categories means reading, thinking, trying out tentative categories, changing them when others do a better job, checking them until the very last piece of meaningful information is categorized and, even at that point, being open to revising the categories. (p. 145)

Categorizing the data is not a linear process, but rather one that evolves over time and is a result of one's own thinking as well as through discussions and dialogues with others.

Once I felt comfortable with my initial categories, I looked to them for overriding connections that would provide me with ways to combine them and ultimately, to reduce the total number. By doing so, I was able to develop the

final themes for reporting my findings. Again, Ely et al. (1991) speak to this process in their section on developing themes. In it they suggest that:

> Categories, however, can serve another function, and that is to help us tease out the meaning of our findings as we consider the supporting evidence in each category and as we determine how categories may be linked. (p. 150)

Once I had identified three major themes, each encompassing a set of sub themes, I took my notes to a colleague for review and discussion. As a result of this meeting, I again renamed and reorganized the themes to better reflect our mutual understandings of the data. At the end of this process, I was left with three major themes – Technological Determinants, Community and Collaboration, and Negotiating/Making Meaning – along with a final evaluative or assessment component in which the participants addressed and made suggestions as to how the conferencing system could be best used. No attempt was made to rank the themes in order of importance or frequency mentioned. I returned to the specific literature on synchronous conferencing to determine if what I had found was reflected in past findings. The literature review in this thesis was a result of that research. It also confirmed my decision to use these themes in the presentation of my data. However, while the literature tends to focus on the mechanisms that enable the synchronous discussion to take place, I believe the participant feedback provides further insight into learner realities of the experience.

TRUSTWORTHINESS

Throughout this research, efforts were made to ensure that the data collected were treated in a fair and just manner and that representations of the data were true to their origin and intent. Ely et al.(1991) referencing Lincoln and Guba, cite a number of actions that should be incorporated in the research process to meet this expectation. Using the categories they identify as a guide, the following efforts were made throughout this research activity.

Prolonged and Persistent Observation: Unfortunately, this criteria is, perhaps, the one that I was best able to accommodate. While Ely does not specify a given length of time to be involved in the research process, and to come to "know" your data, I am fairly convinced that a four year period would be considered as adequate. One of the advantages of working with data over such an extended period of time, is the need to continue to become reacquainted with it. Each time one returns to the analysis, it becomes necessary to reread and rethink each of the decisions that were made in the past. It also gives an opportunity to reconfirm decisions about the data that were made in the past.

In my case, I also had the advantage of working in the same area that my research was in. On a daily basis I was in contact with students, instructors and designers who were working with the tools I was researching. As time went on, my general understanding of on-line learning helped me to better understand the data I had collected and the perceptions of those involved in

this phenomenon. It also helped me to recognize the ways in which my own preconceptions about technology could interfere with the analysis process.

Triangulation: In collecting the raw transcripts from the synchronous discussions, along with the students' written reflections, I was able to juxtapose one against the other and strengthen the trustworthiness of the study. There were times in the reflections that students remarked that when they read the on-line transcripts, they were surprised at how their perceptions of what had occurred on-line were different from the reality. Having both the transcripts and the reflections provided me a similar opportunity to look at the same phenomenon from two different perspectives.

Search for negative cases: As I went through the data, I remained aware of the need to ensure that each of the participants in the research had a "voice". Having gone through a fair bit of self examination, I knew that the responses to synchronous conferencing would be very different and that it would be important for these differences to be "heard" in the reporting of the findings. This is, in fact, one of the assumptions that underlies my approach to this study. I made every effort in my writing to provide a balanced reporting of the data and to ensure that divergent opinions were presented.

Peer-checking: Once the initial analysis had taken place, and the data had been divided into themes, the results were brought to one of my fellow students for an outside opinion. The intent was to have someone less

involved in the study to verify my own interpretations of the data and the "fit" of the categories. As a result of this consultation, a number of changes were made to the overall themes, collapsing some of the smaller categories I had initially identified into a few larger ones. In addition, once the initial coding had taken place, the Supervisor of this study was consulted, again, in an effort to increase the trustworthiness of the analysis.

ETHICS REVIEW

An application was made to the Department Ethics Review Committee on May 12, 1997. The study was approved on May, 23, 1997. Some concerns were noted in regards to maintaining the confidentiality of all involved in the study. One of the reporting decisions made was based, in part, on this concern. In an effort to ensure that student participants could not be identified, the direct quotations in this report have not been attributed to any individual student. This decision was based on the fact that, because I was seeking the overall experience of all the students, it was not necessary to relate one quote to another, and I was thereby able to avoid unintentionally identifying an individual through a compilation of their responses.

Chapter 4

Data Presentation and Analysis

OVERVIEW OF THE DATA

My intent in this research was to obtain a better understanding of student perceptions to one particular form of on-line communication – synchronous computer conferencing. In so doing, responses were sought that could provide further insight into the strengths and weaknesses of this type of communication; its ability to contribute to the learning process; the ways in which it might contribute to the development of learner collaboration and a learning community; the difficulties and issues that would be encountered in its use; and finally, recommendations for its effective implementation within formal, adult education, on-line courses. The data have, in fact, provided a starting place from which these questions can be addressed. Before providing the thematic analysis of the data, I present an overall response to the questions posed by the researcher. The following provides a general overview of the collective voice of the students and therefore, may not speak to individual responses or concerns.

GENERAL OVERVIEW

Overall, participants involved in this research indicated they saw a place for synchronous conferencing within on-line education. As was found in the

literature review, there was a feeling that both asynchronous and synchronous conferencing have their strengths and weakness and should be used together to enhance on-line communications. Students were specific in identifying activities that could be effectively used within each of the two communication environments and saw the need for both types of CMC in order to meet various learner needs. They recognized the limitations and demands of both synchronous and asynchronous environments. In their reflective comments and papers, several of the students commented on the value of combining the methods within one course. The following are representative examples.

> In reflection, I have come to the conclusion that it would not have been a success had we used only synchronous or asynchronous discussions. So rather than try to decide which one is more effective, I think it is more meaningful to say that the two work well together within the context of a lesson.
>
> If I were to design an online course I would try to incorporate both synch and asynch chats; used together they can be extremely useful ways for students to be actively engaged in their learning. Also, some would have a preference for synch, some for asynch therefore this seems the most fair approach (assuming both are suitable to the course material that is.)

In most cases, even though students may have identified a personal preference for one mode of communication over another, they saw the value in combining the approaches.

At the same time, it became clear that the introduction of synchronous conferencing activities imposed a time constraint on the participants. The advantage of anytime, anyplace education was adversely affected through

the imposition of synchronous CMC. While a few of the groups reported no problems in scheduling these activities, many found them to be difficult to orchestrate and therefore, a major obstacle to participating in group activities. In some cases, groups were never able to coordinate all of their members to meet on-line at the same time. In addition, outside environmental concerns such as children and other types of family demands, served to interfere with learner participation.

There is a general feeling that a set of skills different from those required in other modes of CMC, are needed to interact effectively in synchronous conferences. The consequences of not having the skills range from difficulties interacting on-line all the way to an inability to participate at all in synchronous discussions. Beyond typing abilities, skills such as the ability to think and read quickly, formulate responses without taking time for reflection, write concisely, and manage multiple threads of conversation are identified as essential to working in a synchronous environment. Grammar and spelling take on a new importance as they influence the ways in which statements are understood and interpreted. In this medium, non-proficiency with language becomes very public and individual participation can be adversely affected by the potential for continuous peer evaluation.

Participants in this study were also aware of the potentially chaotic nature of their on-line synchronous conferences. Many of the groups experienced the difficulties of having disjointed conversations and were mindful of the effect

this had on their cognitive understanding as well as their ability to meet the objectives they had set for the session. In many cases, participants identified their initial synchronous sessions as a "free-for-all" and took steps to impose structure on their subsequent synchronous meetings. Ideas for creating structure were often developed in the asynchronous conferences between the first and second synchronous meetings. A variety of methods were implemented including the formal delegation of a moderator; the use of pre-assigned "turn-taking" or "round-robin" discussions; and the development of abbreviations whose shared meanings could be readily understood by all participants. Many participants cited the need to develop mechanisms that impose structure on the conversations as being instrumental in increasing the effectiveness of their synchronous discussions. At the same time, however, there was some recognition that in so doing, a certain amount of the spontaneity and fun that is part of the synchronous experience, was lost.

The need to communicate without the help of social cues was recognized by many students as one of the limitations of the textual environment. While not unique to synchronous conferencing, it is seen as having an impact on both cognitive and affective understandings, as well as on the ability to develop and interpret personality characteristics. In other words, participants had more difficulty portraying, and recognizing, personalities. However, one advantage cited of the synchronous environment is the timeliness in which statements and comments can be clarified and explained. This serves to lessen, to some extent, the effect of communicating without the assistance of

non-verbal cues and in determining the affective attributes associated with a given response. In addition, participants were able to employ textual expressions, such as emoticons and punctuation in an effort to add an affective dimension to their responses.

There was a general feeling among the participants in this study that one of the reasons they were able to work together effectively in an on-line environment was a result of having met each other before getting involved in on-line studies. This was not the first course they had taken as a group, and many had previously participated together in both large and small face-to-face and on-line group activities in other courses in the program. Many of the learners speculated on the degree to which this prior knowledge of each other enabled them to interact effectively on-line. Some felt they would not have developed the same sense of teamwork and understanding had they not had this history. In fact, in one group where not all of the members had previously worked together, there was some feeling that the group never "bonded" during their on-line activities. Clearly, there was a perception by the participants in these courses that their ability to work together on-line was linked to their knowing each other and that this sense of trust might not be replicated in an environment where they were expected to interact with people they had never met or worked with previously.

TECHNOLOGICAL DETERMINANTS

> I knew that sitting at home on your computer and conversing with other learners spread across the landscape would be an unusual way to communicate, but was unprepared for just how difficult an adjustment it would be. McLuhan's slant on Inniss's thoughts came to mind: "The medium is the message" – all communications run through the unusual cyber-world come out the other end a touch twisted. Attempting to simply carry on a synchronous conversation with four learners proved nearly impossible at first; the plain fact of different typing speeds and computer language comprehension really messed things up in a frustrating way.

By the time we reach university, most of us have had experience interacting face-to-face in a classroom environment. We have at least, begun to develop the skills we need to successfully navigate our way through the academic milieu that we have entered. We have developed ways and means to adapt to our surroundings. So, the introduction of a new paradigm in which to learn causes us to look again at the skills that we have and to reevaluate how they will serve us. The participants in this research were acutely aware of the different demands that were placed on them by the technology they were required to accommodate. They recognized the skills that were needed in order to function effectively within the synchronous, on-line environment. And, those who had the necessary skills were aware of the advantages they held over those who did not. Many of the issues raised in the literature were also raised by these participants including the demands of being involved in a written conversation, the demands on time and the new sets of skills that need to be cultivated in order to meet these demands.

Speed of Response

In a synchronous conference, the ability to type accurately and quickly becomes not just a benefit but a necessity. In a fast moving environment, where individuals' contributions depend on what they can get to appear on the screen, typing becomes the catalyst needed to "speak" and to be "heard". Participants in the synchronous conferences commented on the effect that typing abilities had on their interactions. As two of the participants indicated:

> A slow typist would not get much said in an open discussion since the speed of the response can affect how often one is heard during a chat.
>
> Those who can type quickly are at an extreme advantage.

Along with this recognition was the acknowledgement that it was important for those with better typing skills to accommodate the needs of the slower typists. One of the faster typists indicated that:

> Another difficulty was allowing slow typers (sic) to get a word in edge-wise. I found that I had to force myself not to respond so as to allow some of the other members a chance to respond to the current topic of discussion.

And while others were aware of the disadvantages of those who could not type, they also knew how the differences in ability could affect both groups. One of the better typists, reflecting on the experience of interacting with a slower member of the group said:

> Further, the "speed" at which respondents respond could be an issue (as Student "A" and I discovered – he a novice typist, one finger style, and myself having typed all my life, so it seems), and learners in synchronous chats would be certainly be driven to distraction by either side if they either did not have the skills to interact quickly, or were shy/lacking confidence, or were of another culture where 'jumping in' was considered uncouth.

There were several occurrences within the synchronous transcripts where the frustrations of poor typing skills were expressed. Comments like "I wish I could type #@$%!" and "errg...can't seem to type fast enough before the conversation changes direction..." were indicative of the difficulties experienced in attempting to converse on-line. In one particularly telling comment a student states:

> In the on-line environment trying to interact with other participants who can type so much quicker is like trying to be part of a conversation in a foreign language.

For these students however, their lack of typing skills were more of an inconvenience than a deterrent to participation. The transcripts show that they were able to make significant contributions to the discussion in spite of their own perceived lack of skills.

For one of the students however, the inability to type became a debilitating factor and a barrier to participation. The consequences of this extreme lack of typing skills could be seen in the transcripts. Participating in only one out of five scheduled synchronous discussions, the following excerpt is typical of this student's interactions (Student "A") on-line:

> K: ...then 2 would hold a synch debate on the 1st (content) on Mon July 7th
> A: OK
> R: Fine by me, that would be #5 and myself
> K: ...ten reflect to the group what worked and what they would differently (reflecting as teachers and students) in the main folder...
> R: Actually, you and M could do your chat on the 7th as well, so long as it got done
> K: then the two others would do the 2nd debate (on the media) incorporating any changes in format on Thur July 10...
> R: Fine if you want it that way

A: SOUNDS GOOD
K: then all of us could do a final reflection on the process on Fri July 11, and we're done!...is this making sense?
R: Sounds fine to me.
A: YES IT DOES
K: those dates work for everybody? shall we cement them in?
R: I had added (in outline, #6) that we could all shoot any async comments into either folder, after the second debates, to indicate how we feel, just for the h of it
A: yes please do

In the reflection paper, this student confirms the difficulties encountered, in part, because of the prerequisite typing skills required to fully participate in a synchronous discussion.

> As difficult as it was to participate in the Asynchronous debate, when I went to Synchronous with ___, I was dumbfounded. I lack the necessary typing skills, English skills i.e.: spelling and grammar, and the confidence necessary to feel that I am making this mode of communication work.

The need to engage in synchronous conferencing created, for this student at least, an untenable learning situation that not only restricted participation but also affected the confidence level of the student.

While the need to type, and the advantage of typing quickly, affects participation in the synchronous conference, learners also recognize the broader role that speed plays within this environment. A continuous stream of words and sentences appearing on the screen requires participants to comprehend often complex ideas, reflect on their meaning, and write a reasoned response within very limited time constraints. In reflecting on this process, one of the participants indicated:

> I found it hard to follow one person's thought. There seemed to be too little time to think and type a response before someone else was responding to a previous question or presenting a new idea.

And, in a subsequent reflection on what was learned in the synchronous discussion, this same participant states:

> [I] can't and don't want to read, think, reflect and respond as quickly as we were moving the other night.

In more than one instance, the need to think and respond at the rapid pace required by the synchronous conference, affected the participants' ability to effectively answer a question. In attempting to determine a date and time for two subsequent asynchronous discussions, this learner responded:

> #2: but we need two asynchs right?? so how about July 5 asycn due date one and July 7 asynch two??? I'm not sure it's hard to think dates through under this pressure...this system doesn't give you any time to THINK as you feel the oth [message was cut off at this point]

Another participant shared a similar experience when having to make arrangements on-line and, in a subsequent reflection indicated:

> There was not enough time for me to think before responding. One result of this is that I agreed to a time for our next synchronous discussion, not realizing that I had a previous appointment at that time.

And in an earlier, more general reflection on the synchronous environment, this same person stated:

> We covered a lot of ground in our synchronous discussions in a short time, but I always felt that it was too rushed and had difficulty responding in time, before the conversation changed its course.

It appears that within the synchronous conference, there is a feeling that a response must be made relatively quickly as participants are aware that others are online and waiting to "hear" from them. The awareness of, and

need to reduce "lag" time was cited in the literature and appears to be a factor affecting response time in this study as well. When the only consequence of answering too quickly is the need to rearrange a previously made appointment, there is not a great need for concern. However, one must wonder about the ability of learners to engage in thoughtful conversations and dialogues while feeling these same pressures to respond.

While learners felt the effects of the pace of the synchronous discussions and the need to respond to each other quickly, it is interesting to note that there was, at the same time, concern about the "slowness" of the overall process. Even though much was said during the discussions, some felt the outcomes were not reflective of the time spent on-line. Ironically, the fast pace at which conversations progress within synchronous conferences is the very same factor that led to the delays in accomplishing the task at hand.

> What struck me in this medium was how long anything took to decide. There were generally two or three conversations going at the same time. While you composed an answer to one person, someone else would reply. Your post would show up three or four posts past when the question was posed.

In response to one participant who indicated that the process was "slower than chatting by phone", another student replies:

> yes, painfully slow...look how much we accomplished in 5 minutes in class Saturday...and the energy was great...we were just "clicking" with ideas

Another group, attempting to come to a decision on a group project, reiterated this concern in the following on-line conversation:

#9: What has been decided for the group project so far? Were we terminated the other night all at the same time? Did you save the chat?
#10: yes
#9: I save it as well up to the time of termination.
#10: we got to the point of alllmoost deciding to use a case study but still dont see how to do it
#9: This process of discussion to decide the group project specifics seems so compared to the face to face discussion?
#9: so in the last transmissions should have been "slow"

Finally, one student sums up the group's progress in the synchronous activity by stating:

> It seems we are wading through molasses in that it is taking so long and it is so difficult to progress in the activity. I feel a short face to face session would have accomplished considerably more.

It would seem that for some, at least, the fast pace of the on-line interactions was juxtaposed against the length of time it took to accomplish their goals. This inability to progress to a mutually agreed upon conclusion could be attributed in part, to the fact that there is no leadership role taken by any of the members. In a face-to-face group, there is a sense of control that comes with knowing who is speaking and the order in which others can reply. A sense of closure can be given as someone sums up the comments and contributions of others. In the synchronous world, the lack of non-verbal cues makes this kind of progression more difficult as there are no cues by which one can determine if they should defer to another. The conversation will sometimes continue as no one is ever sure if the last word has been said.

As was found in the literature, participants in this study recognized that to achieve the maximum speed on-line, it was important to minimize the number

of keystrokes used in the written communication. Various methods were employed to ensure that group members could communicate in an efficient fashion. In one group, a set of codes was distributed prior to the synchronous discussion. In an asynchronous message, the following communication conventions were distributed to the group:

> 3. If you want to show your agreement with someone's point or opinion, simply type an exclamation mark (eg. !! or !!!!!)
> 4. If you want to show your disagreement with someone's point or opinion, simply type a # sign (eg. # or ##########).
> 5. If you want to cue up to ask a question, simply type a question mark (?). The moderator will give you the go ahead when appropriate (if you have a question for say, Student #1, use ?-S).

The codes then, allowed individuals to abbreviate their messages and still be understood by the others. It is interesting that, after using this set of codes, another participant in this group took some time to streamline the system even further. In a message to the group, further suggestions were made to use the keyboard even more efficiently.

> I wonder would the codes work better using easier keys to reach. I raise this because I noticed a significant increase in my speed in responding when I quit using caps. Reducing the key strokes required to communicate will be an area worth keeping an eye on. For instance !!! = aaaa (agree) or #### = ddd (disagree). These keys are much easier to use and don't require the use of the shift key.

These suggestions were developed as learners became acquainted with synchronous conferencing and the demands that the environment placed on them. It is important to recognize that not all learners are equipped with the skills that are required of them in the synchronous environment, and that one way to alleviate the pressures of time is to provide ways in which communication can take place more efficiently.

Demands on Time

One of the concerns that echoed throughout the various groups involved in this study was the difficulty in arranging times to meet on-line at the same time. As was found in the research, the advantage of the "anytime" characteristic of on-line education is diminished when the need to schedule synchronous conferences is imposed. Most of the learners in the outreach program were involved with both work and family responsibilities that needed to be juggled with their studies. Some had access to computers in the home while others were limited to using the computers in their workplace for their work on-line. Many of the learners shared the computers in their homes with other family members, which became particularly problematic when there were teenage children to be negotiated with. Work schedules differed and for some, jobs that required travel complicated the arrangements even further. While there were no time zone differences among the group members, misunderstandings as to set times and dates were often responsible for non-attendance at a scheduled conference.

The difficulty of arranging synchronous on-line discussions was clearly an issue for participants involved in this study as is indicated by the comments made in the reflections and on-line interactions.

> I also never anticipated that getting everyone together at the same time would be so difficult. We couldn't even solve it for ourselves – this problem can only escalate with larger groups. **A lot of lead time (or student organizational time) would have to be factored into the course schedule. In some groups, the facilitator may have to specify time options from which the students could choose** (some

> adults still do "what the teacher tells them" while resisting colleagues' efforts).
>
> The first difficulty that I noticed is trying to get everyone on-line at the same time for the synchronous chats. With people taking vacation days, and some people only able to connect at work and not at home or vice versa, it took some planning (asynchronously, of course) to establish a time suitable for everyone to meet.
>
> This time "A" is present but "B" is not able to join the discussion. It seems that this situation mimics a face to face group exercise where coordinating times and meetings is just as problematic.

While many of the groups shared this experience, there was one group for which arranging time schedules was not a problem. At the start of the exercise, each member of the group was asked to post a "resume" which included the times that they were most available. Using this as a guide, they were able to identify a time that was convenient for all of them to meet on-line. Having done so, they made a commitment to attend the scheduled on-line sessions. As one of the members put it:

> Once we were able to find a time available to us all we were all very dedicated to being there. I even drove a business associate to the airport 2 hours early to support our team!

It seems that, in this case, the members of the group felt so responsible to each other that they made their on-line appointments a priority in their lives.

There were however, times where those who participated in a synchronous discussion were clearly wishing they could be somewhere else. The following two examples are illustrative of situations where learners were compelled to participate at times where personal and environmental conditions were not particularly supportive of the learning environment.

> I drag myself onto the computer a little after 5 and have to bring myself up to speed with the latest postings. I am in the throes of a battle with stomach flu and am not feeling at all cybernetic!
>
> On top of that my environment was very chaotic. It was around 8:30PM, [my child's] bedtime, he started to cry. Try reading, thinking and typing when a screeming baby's 10 feet from your head.

While some participants will make adjustments to their lives in order to accommodate the need to be on line at the same time, many students choose to study at a distance because they require the flexibility that distance learning can provide. Because of this, it can be problematic to introduce a communication tool that imposes temporal requirements. Taking the advice of one of the participants in this study, instructors would be wise to ensure that any synchronous requirements are scheduled in advance and clearly communicated to prospective students.

As might be expected with the introduction of any type of instructional technique, synchronous computer conferencing brings with it the need to adapt and accommodate a particular set of demands. In this case, the nature of the technology requires learners to possess a specific set of skills in order to be effective participants; to adapt to the speed requirements of the medium; and to accommodate the time constraints imposed on them by the need to be on-line at the same time. Provision for, and consideration of, these demands must be taken into account before implementation decisions are made. And, the need to do so should not be taken lightly or halfheartedly. As one of the students indicates as part of a list of important

considerations to be given when implementing both asynchronous and synchronous discussion:

> Skills for online fluency: How does one convince a fifty year old part-time ambulance person living in Hicksville, BC that in order to participate in paramedic training he/she needs to learn to type at a speed of 30 words/minute or better?

But perhaps the kinds of skills required to interact effectively in a synchronous discussion are best developed through one's own life experiences. One student, reflecting on the synchronous activities, concludes:

> Talking on-line is a dislocating experience. I realized early on that I needed to indicate in each response, who it is for. Good typing or good proofreading is a pre-requisite for this mode of communication. I felt pressured to respond quickly and to carry on conversations with both "A" and "B" at the same time. I reflect that my experience as a parent and a teacher allow me to cope with a multi-level conversation like this. Heaven help my students who have no such experience to fall back on!

COHESION AND MUTUAL UNDERSTANDING

#1: Okay lets go into free for all mode where all type and confuse everybody
#1: I open the floor!!!!
#2: Wow, [#1] you sure make a great polite facilitator!!!
#1: Thanks. Now the works done we can play
#1: [#3] do you have home access now
#2: You know, I think that dead "silence" on a computer is harder to take than the ones we get when we throw a question out onto the floor in the classroom.
#1: I tend to agree
#3: He definitely is a "gracious leadder" and knows good Chinese restaurants
#3: Yes I know have netscape 3 anf fc 3.5

#1: great so we can get together any night then?
#2: Regarding some of the discussion questions...should we each take a role and try to decide how we might have changed the scenario in the case study?
#3: Right any time that my son is off so we should plan...i hava an adolescent
#1: You just answer the questions unless the group want to
#1: [#3] please update your Resume with the new times thanks

Given the inherent, chaotic nature of synchronous discussion, it is not surprising that concerns regarding the lack of cohesion emerged in the data. Without a doubt, at first glance the written conversations that take place in a synchronous conference would not be considered "user friendly". A combination of short, fragmented sentences, overlapping conversations, questions and answers that are physically separated, and frequent spelling and grammatical errors, all contribute to the development of a rather confusing and chaotic discourse. In describing the experience, one participant says:

> During the session I found myself trying to just keep up with the train of thought and I had a difficult time responding fast enough. I would post a comment, then "A", then "B" then "C", all with different trains of thinking. I would try and respond to one thought, then bounce back to another and so on. It was a lot of fun, but started to make my head spin.

However, it is within this context that participants could be expected to exchange information and discuss complex concepts and ideas in order to build their knowledge and understanding of the course materials. As was found in the research, many students who come to synchronous conferencing for the first time find it difficult to navigate and make sense of what is being said. With time and practice, they devise ways and means to structure the

conversations, creating an environment in which a degree of mutual understanding can take place.

Establishing Order

The data obtained in this research would appear to support the literature on synchronous conferencing in its findings that students who use this form of communication find ways to structure the conversations, making them more accessible to the participants. Similar to what was reported in the literature review, the participants involved in this research developed and used various kinds of mechanisms to make the synchronous discussions more coherent and cohesive. In some of the groups, it was common practice to use the name or initial of the individual being addressed as a preface to each of the transmitted comments. Other groups set out very specific protocols to be used during the discussions. These procedures often included the order in which each of the group members would respond on-line as well as the manner in which questions and responses to other group members would take place. Codes were developed in an effort to decrease the number of keystrokes required to relay a message and thereby lessen the occurrence of spelling and grammatical errors which sometimes obscure the meaning of the transmission. From this data, it would appear that familiarity with the environment increases with use and that students find synchronous discussions easier to orchestrate as they obtain more practice with them.

The need to structure the conversations came through clearly in the reflections the participants made after their initial on-line interactions. Most often, participants came away from their first synchronous conference thinking that little had been accomplished due to the lack of cohesion in the conversation. In one case, a participant in a group describes the experience as follows:

> The first synchronous discussion went very quickly, and unless each participant was concentrating fully and responded quickly they were left behind. The moderator ensured that everyone spoke, however in this discussion she did not direct who was to speak and when. Basically, the debate was a free-for-all. Although, it was very lively, the topic got off track and effective responses were lost because there was too much happening too quickly, and no time or thought could be given to a response. It reminded me of a mad-dash horse race – all or nothing.

Another member of the same group indicated:

> We also did not set up any guidelines with regards to addressing individuals, and therefore the debate was fast and furious and sometimes difficult to follow. It was hard to identify who was being addressed in the comments. Comments should be addressed to "all" or to an individual for clarity in both synchronous and asynchronous forms.

In subsequent conferences, participants developed guidelines to impose structure on their conversations. In many cases, a decision was made to appoint a moderator whose job it was to direct the conversation. As a result of their reflections on the first conference, the group quoted above implemented the following procedures:

> Our reflection on our synchronous debate brought us to the quick conclusion that we wanted the moderator to select the speaker, keep us on topic and to keep us to our agreed time frame limit. We also decided that each speaker was allowed one opening statement and one response, directed by the moderator.

In another group, the following instructions were conveyed through an asynchronous message that followed the first synchronous conference:

> Once EVERYONE has typed once, all of us respond, one by one. If one comment is in response to another, refer to the individual comment specifically. (so, don't say "I agree" say "I agree with "A's" comment on greenpeace").

The structured conversations seemed to become more manageable and comprehensible for the participants, and the following is reflective of the way two of the students felt about their second experiences with the synchronous conference:

> While restrictive in a sense, the structure was quite liberating in another. It took away much of the uncertainty about multiple discussions, taking turns to speak, and obtaining consensus out of the activity.
>
> This time, with our new skills from the past, we did not go off on tangents and a great deal was accomplished. The process and the players for our activity were arranged and the information about the chosen study required for the debate was sent by Email to all five members of the group. The chosen moderator sent out the resolution and the ground rules by FirstClass as well. The rules were that we were in pairs with a moderator and could speak alternately. The ground rules kept us on track and were an important aspect of the chat.

Interestingly, while the increased structure was seen to be a benefit by most students, there were those who felt that some of the advantages of synchronous discussions were taken away in the process. For these students, the synchronous environment presented opportunities to engage in activities that were enhanced by the momentum and speed afforded by this communication tool. One student, comparing synchronous and asynchronous discussion indicated:

> In the synch phase, we were able to problem-solve and suggest ways of dealing with the issues. Again, this suited the mode of discussion. We were able to brainstorm, chain ideas, trade points of view, and build on each other.

However, after the second discussion, where guidelines had been imposed, one student commented that:

> The second synchronous debate felt like a face-to-face debate. However, all the structure made it boring and although the time frame had been shortened, the debate appeared to drag in time. The increased structure resulted in the loss of spontaneity and fun. It did however leave plenty of time for each person to create and develop better thought-out responses.

Another group, taking time within one of their synchronous discussions, reflected on the discussion itself. In a short exchange, two of the students commented on the effect of using a "round robin" format:

> #1: taking turns is simpler but not as stimulating. Especially when you are following three discussions at once.
> #2: there are times when you want to jump in and can't/shouldn't.

And finally, one student who cited the importance of structure in encouraging all members of the group to participate in the discussion, concluded that:

> The most obvious negative component was that the format killed spontaneity. If one did not type an idea when it was conceived, by the time it was one's turn, because of reading other contributions, the idea may have been forgotten. The order of the response was totally out of synch with a colleagues points being made.

Too much structure can, it appears, take away from some of the positive attributes of synchronous conferencing, such as momentum and spontaneity, that were cited by students.

At the same time, there were a few students who found that the synchronous discussion failed to meet their learning needs because of the difficulty they

had in putting the meaning of the conversations together. For one, the inability to understand, and to be understood, generated the following assessment of the tool:

> I did not find this communication particularly useful as there was no coherence to our conversations. In both meetings on-line, I found it difficult to understand what others were saying or meaning, and it seemed that the others had trouble understanding me as well based on the responses I received or did not receive from my submissions. Reading the transcripts, I realize that I need to listen more and not be quite so quick in responding without some thought.

For another student, meaning was obscured by the frequent spelling and grammatical errors. This student states:

> And personally (although I am as guilty as the next) the spelling mistakes and typos were driving me nuts, and in some cases blurring the meaning of the comments.

Clearly, not all students find this an easy medium in which to converse but most seem to feel its functionality increased with the introduction of a moderator and a set of shared communication conventions that served to structure the conversations.

Providing Clarity

> I found this exercise quite tiring. My personality is one that needs to intuit how people are feeling and I am unable to do this effectively on the NET. Our messages are limited to a few lines and so I find myself being terse and using abbreviations to fit everything in. I am not sure how these messages will be interpreted by other group members

Again, as was found in the literature, students involved in this research expressed concerns regarding the ways in which the lack of non-verbal cues

afforded by this medium clouded the meaning and intent of the messages being shared in the conference. As would be expected, they were acutely aware of the important role that non-verbal communication plays in providing clarity and understanding for both the speaker and the receiver of information. Because they recognize that on-line communication does not inherently provide for the transmission of non-verbal communication, students enter into this environment unsure of how they will interact in an arena that is devoid of these cues. As expressed by one of the students in the program:

> I know that I rely very heavily on gestures and facial expressions. You know, how you can look around the room and you can "see" that everyone is engaged and they are following what is going on? Or that one person has that frown, and needs to be encouraged to speak up, but thinks that he is the only one who doesn't agree, or is confused? These are the cues that we don't have in CMC, and I am a little unsure how to work without them.

While not unique to synchronous conferences, the lack of non-verbal cues certainly played a part in both the cognitive and affective understandings of the participants in the course.

In consideration of the cognitive dimension of the conversations, two of the students in one group identified how the absence of non-verbal cues muddied the context of the messages. In an effort to add clarity to their conversations, they introduced a set of codes that were designed to substitute for these non-verbal cues. The first student reflected that:

> The members of my group were separated from each other geographically and, on occasion, temporally. This placed several restrictions on how we communicated. We were forced to rely on the

> written word to transmit messages. Many of the clues that we normally use to place words in context were missing. We could not hear the tone of voice, its pitch, volume, and tenor. We could not see facial expressions and body posture. There was no way to gauge the timing of the "speech". Even such simple things as the order we received the messages from each other served to muddy the waters. A common cry was that there was no structure on what we were doing. Thus, our messages were "flat" and lacked feedback.

As a result of this perceived lack of context, this group devised a series of codes designed to add another dimension to the conversation. In doing so, they felt they were better able to identify each other's understandings of the comments and interactions.

> Our group felt the ability to influence by indicating puzzlement, agreement, amusement or support for comments was missing. Our last session was an excellent step towards coming to grips with this issue. "A" had developed a set of codes, usually simple keyboard symbols that were assigned a meaning. These symbols were used to indicate support (I.E. A ! meant I agree with "A") or disagreement (I.E. B # meant I disagree with "B's" comment). This seemed to assist us in identifying those comments which had captured the essence of a discussion and those which were not working.

In this instance, the symbols were not used so much as an expression of affect but rather as a vehicle to increase the mutual, cognitive understandings of the group. A review of the transcripts shows, however, that students were more likely to use punctuation codes they had developed within their groups, than they were to use the more public, and widely shared emoticons cited in the literature review. As has already been indicated, they did use naming references to connect responses, and took some measures to attempt to decrease the consequences of incorrect spelling and grammar.

Overall, student synchronous discussions became increasingly less chaotic and unclear with continued use as most recognized early the inherent difficulties in maintaining cohesive conversations and the need to develop ways by which mutual understandings could be enhanced. However, while taking the time to create structures and implement mechanisms that increase coherence and add a non-verbal dimension to the conversation may alleviate some of the inherent chaos of a synchronous discussion, these communication devices may not be sufficient to transform the "sound byte" approach, as one student named it, into an environment that is conducive to the development of in-depth discussion and dialogue. This suggestion will be further explored in Chapter 5.

COMMUNITY AND COLLABORATION

The literature related to on-line learning links collaboration and community together in suggesting that, in order for a collaborative learning environment to emerge, a sense of trust and respect must develop between the on-line participants (Comstock and Fox,1995; Wegerif (1998)). The prerequisite need for this kind of a relationship to nurture a collaborative, on-line environment was echoed throughout the data, as participants repeatedly identified their knowledge of and familiarity with each other as integral ingredients to their being able to interact effectively on-line. However, because these relationships pre-existed this study, it is difficult to determine the ways in which the synchronous conferences may have strengthened, or

perhaps as some would suggest, weakened these relationships (Palloff and Pratt, 1998). It is interesting, nonetheless, to identify the importance students placed on the need for personal connections. Participants did raise the issue of affective communication and how synchronous activities were able to accommodate or hinder its development and these insights provide some understanding of the contribution that synchronous conferencing may play in the development of an on-line community. In addition, the notion of group dynamics emerged in relation to the ways that synchronous activities differ from asynchronous ones.

Personal Connections and Trust

> Student #1: actually "A" your sarcasm did not bug me because I know you and your sense of humour. if you were a stranger, well then watch out!
> Student #2: let's face it we took a lot of liberties because we feel safe to do so.
> Student #3: yes "A"... we knew you were acting...DE students that had not worked together would have a tough go at it.

If there was one predominant theme that ran throughout the reflections and transcripts, it was the common belief that on-line interactions were made easier because of the relationships that had developed between the students through their prior course work. These students were members of a cohort group that had met and worked together in face to face courses thereby having had the opportunity to learn about each other over a period of time and within an educational setting. They credited this personal knowledge of each other for much of the success they had interacting on-line. The idea that they could trust each other contributed to the sense of security they felt

during their interactions. Several students commented on how the rapport they felt with their group members enabled them to carry out the required activities.

> We had a very good rapport with our group and to reflect as if we were students participating, it sure felt effective. I think the fact that we had a good, close knit group and felt comfortable with each other enabled us to write down our honest opinions. I did wonder, as an instructional designer, if we had never seen or known each other if it would have been this smooth. hmmmmmm
>
> I have worked with these people for the past two years and have always found them to be serious about their work, and committed to doing a thorough job. I wonder how the determination of groups could be facilitated on-line with a class of strangers. For myself, I would feel quite uncomfortable if no prerequisite work was done to introduce group members and to determine commitment level.
>
> I believe that the main reason for the success of our experience was that our group trusted each other. We knew that we could count on each other to perform and do more than was expected in the assignment criteria. Accountability was not an issue with us. I do not believe that this exercise would have been as successful with a group of strangers. We would not have been able to complete the structuring as quickly and as effectively as we did unless there was someone with very strong leadership skills and everyone else was willing to follow their lead.

In addition, students felt the trust that had been built over time enabled them to better cope with the barriers they faced as a result of working in an electronic environment. These frustrations, unique to working with technology, such as having trouble getting on-line due to server problems and dealing with individual hardware deficiencies, were tempered by the support received from their colleagues. As one of the students indicated:

> Working on-line demands more commitment than the face to face environment because each participant is physically separated from the others. This separation can become even more problematic when it encompassed technical problems as well as distance. The

> infrequency of the meetings increased the importance of each one and the need to accomplish something on each occasion added to the pressure. This group of adult learners was very task oriented and managed to overcome the technical difficulties that occurred. That we had also worked together over a long period of time and had a sense of personal connection and understanding alleviated some of the problems of separation. A class of students however may not have the same level of commitment, connection and motivation to struggle with the technology at the same time as they struggle to master the content.

The importance of the prior relationships could be seen even within groups where some of the individuals had worked together while others had not. The comfort level with those that knew each other well was greater, at least at first, than it was with the lesser known members. There was a level of confidence and ease that existed between members that had previously worked together. This enabled them to feel that their messages would be understood within a context of familiarity that recognized individual tone and nuances. In describing the on-line experience, this student indicates how the level of trust differed with individual members of the group.

> Wow!...what an incredible learning experience. Up until now we had not spent very much time on FirstClass and it was usually always a voluntary aspect of course work rather than required. I found it very easy to talk with "A" online because I didn't ever worry that "A" would interpret what I wrote much differently from that which was intended, as "A" knows me so well. However, in talking with "B" and "C" I wasn't always sure that my meaning was fully understood. Humour and sarcasm are an everyday aspect of my oral communication style, however online I was guarded for fear someone might misinterpret. This is one drawback to online communication – it can limit some of the spontaneity and liveliness of conversation until members become familiar with one another. I found toward the end of the process our communication seemed less stifled and more interactive.

In a like manner, the few groups that were not able to work together effectively on-line attributed some of the difficulties to the fact they did not have any prior experience working together. While there were fewer groups that shared this negative experience, one of the members of a less cohesive group reasoned that the outcome was, in fact, a direct result of their not having made any earlier connections with the other participants.

> In listening to the other groups debrief in class last Saturday, our group was very different. We did not bond together or trust to the same extent as some of the others supposedly did. This was the first time that I had worked with three of my group members in the two years we've been together. it seemed that each member of our group was definitely a loner. Each seemed to have his/her own agenda for the class and in particular for this assignment. Three choose not to participate to any great extent, and the two others that did participate could not reach an agreement on how the assignment could be handled.

Clearly, trust was an important issue to these students and was integrally linked to their perceived ability to work together on-line and to accomplish the goals of the course. This research would seem to support the notion that a sense of trust needs to exist in order for students to be able to work collaboratively in an on-line environment.

What these students can only speculate about however, is the difficulty they might have in building and nurturing this kind of environment with a group of strangers. It may be the case, that the communication tools themselves can be used to foster these feelings of trust and connection. It should be remembered that this research took place at an early stage in the use of computer conferencing for these participants and perhaps other on-line

communication tools now more commonly used, including e-mail and listserve discussions, have increased the comfort levels of computer mediated communication. There was, some indication that over time, individuals adapted to the demands of this new means of communication and connection. As we all integrate new tools into our lives, our understanding and utilization of them are very likely to change.

Affective Communication

> I felt badly to "shoot down" "A's" ideas because I could not see their face and had no idea how he/she was feeling. Even with colleagues with whom one has worked for years, we have come to rely on non-verbal communication cues.

Comstock and Fox (1995) identify "caring relationships" one of the components of their on-line learning community building model. To build these relationships, participants should engage in personal conversations, stories and caring talk. It is interesting to look at the results of this research for evidence of these kinds of activities in a synchronous environment. The inability to transfer various affective communication dimensions that are normally evident in face to face discussions to an on-line conversation was an issue raised by many of the participants in the course.

There were certainly mixed feelings about how conducive this learning environment was in allowing for the transmission of feelings, humour and other types of non-verbal communication. For many, getting across feelings

was an onerous task. One telling remark from a student found within the actual transcripts illustrates her/his frustrations with this aspect of the communication. The student states:

> I believe it is too hard to say all that we have to say and type it without the passion in our voices. please accept that i am passionate

For a few of course, this proved to be a less daunting task. In one of the reflective papers, a student indicates:

> ...it was clear to me how people felt by the written responses received. People's emotions were made evident to me through the use of the written word.

It would seem that, for caring talk to take place on-line, there would need to be some mechanism by which students could convey affect. Overall, this proved to be difficult for many of the students.

For most of us, communication involves more than the words that come out of our mouths. Facial expression, tone of voice, hand gestures add meaning to our communication and help us ensure that others share our own interpretation of what we are saying. What is at stake here goes beyond a cognitive understanding; it provides us with a mechanism to gauge how others feel about we are saying. The inability to use particular aspects of one's personality on-line made it difficult for some students to effectively deliver the affective dimension of their message. Receiving and projecting affective communication solely through text was problematic for many.

> I found it difficult to express my feeling/body language in this forum. So I found myself using words/expressions I wouldn't have used in a f2f discussion. (sorry if I offended anyone.) I tried using emoticons, but found it distracted my thinking to a more casual slant.

> The ability to communicate feelings online was a significant barrier to effective communication, and therefore learning, in our case study. Post case study comments like "it sure was hard to use humour" or "I wasn't sure what you guys thought of..." were common.

The ability to use humour as one would in a face to face conversation was singled out as an important communication tool that became difficult for many of the students to convey. Participants indicated that humour is one way for them to project their personalities. As one student succinctly says: "I really do miss losing my sense of humour online". Still others commented that:

> We worked well as a team, although the usual comic relief that would be evident in a face to face situation, was difficult to achieve. On-line jokes often fall flat.
>
> Some paradigms must change (for example, the use of humour can be ineffective on-line, even offensive).

However, as a reader of the transcripts, it was clear that there were times when the attempt at using humour was successful. In a couple of instances I found myself laughing out loud at what I interpreted as humourous exchanges. The following two excerpts from the transcripts seem to showcase instances where humour worked:

> Student #1: Oh yes I see at the top of the screen that you are here and now I see your response "A"
> "A": How do I look?
> Student #1: Rather textual in nature.

And in another group:

> Student #1: Anymore midnight assessments, Lol? (code for laughing out loud)
> Student #2: i dream about doing just my job or just going to school
> Student #3: I did my last one in six days straight. My wife has left me and my kids all hate me but its done.
> Student #2: no more midnights, but a few 6 am's

> Students #1: You have a wife, #3?
> Student #3: not according to her

So, while humour was seen as being difficult to negotiate on-line, there remained some students who felt that the textual nature of the synchronous environment was not entirely limiting. As one concludes:

> Humour can work here and can be a stress breaker. If another player gets it and comes back with a rejoinder then the joke is enjoyed by all.

In addition to caring talk, Comstock and Fox (1995) cite the contributions that "personal chatting" and "social conversations" play in developing an on-line community. They see these kinds of exchanges as contributing to the development of trust and familiarity and important in building a collaborative learning environment. There is some indication in the research that participants in synchronous conferences engage in these kinds of discourses. Several students remarked on how their synchronous discussions had a tendency to go "off topic". The following comments are reflective of these observations.

> I think both types if discussions worked well. The synch generally appeared to be more like the "traditional classroom". I think it worked well, sometimes too well, due to the closeness and knowledge of each other. It was easier to get off track I think, as we discussed problems with Netscape, families, trips etc. I think that to get to this level with new students unknown to each other would be difficult. Sure, they might describe the weather still, but I think that there would need to be a fair amount of asynch discussion first to get to know each other.
>
> I think our chats are a little too long and we get off the track but this is in part due to our knowing about each other and feeling comfortable.
>
> I think that it would be awkward trying to teach the technical material during a synchronous chat. Especially where there are several students online at the same time. Perhaps the word "chat" is a good

> name for it. It is very useful as a sort of informal forum for airing one's ideas and concerns.

While the students may not have always appreciated this extraneous talk as being valuable, it may well be one of the ways in which synchronous conferencing lends itself to the building of community. As one of the students concludes:

> This experience required a lot more energy and work than a face-to-face debate. However, I would use the synchronous debate as an ice-breaking tool. i.e., get the learners communicating with one another prior to studying and developing an in-depth asynchronous debate. Although this would require some very structured logistics organized by the instructor, the synchronous debate may quickly bring out the personalities of the learners thus shorten the hedging and getting-to-know-you dance that all learners in new classes go through.

Group Dynamics

A final sub theme related to community and collaboration is that of group dynamics. Students in the study did spend some time reflecting on the ways in which they felt that their interactions on-line differed from the ways in which they interact face-to-face. One of the common threads that ran through the data was the way in which conflict was handled in the conferences. Synchronous communication did not emerge as a venue where conflict could be easily addressed. As one student stated: "I don't think we dealt with conflict – instead we chose to ignore it." There was a perception that it was inappropriate to deal with conflict in the very public venue of the on-line chat.

> It was interesting to see f2f social issues being displayed on-line. If blows could be exchanged, then a couple of our members would have

> been on the ropes once or twice. Disputes were handled differently than in f2f, with members backing down quickly, and choosing not to dispute disagreements in the written form. These disputes were handled behind the scenes via private chats, as well as by telephone. I was personally embarrassed to see on-line squabbling, and felt it was discourteous and potentially disruptive and destructive to the group process.

Other students felt that because they were unable to fully interpret the intentions and responses of the others in the group, the best option for dealing with conflict was to retreat.

> Early on, I had wanted to try something a tad less conservative than the others. I was shot down in flames. (Sorry, bad pun.) My team-mates' response definitely reduced my desire to push the envelope. Again, the lack of feedback made it difficult to "read" just what the message had "really" meant. Rather than seek clarification, I retreated.

Some however indicated that they were able to continue working together despite the inability to resolve their conflicts on-line. Again, much of this was attributed to the fact that they knew and trusted each other.

> Additional concerns were...the challenge of using humour effectively, and no conflict resolution on-line. Teamwork prevailed regardless of the issues, likely because of the good relationships already established amongst group members, and the limited time for the project.

Another student surmised that, had they been working with a group of "unknown" students, the outcomes of their conflicts would have been much different.

> Several "hot" issues came up during our debates. With our group, they were overlooked because we knew each other well, knew where the comments came from, and were willing to acknowledge the shortened debate time frame. However, if a stranger had brought up some of the 'hot' issues the response would have been very quick and decisive. It would have resulted in three things. The person would toe

> the line, of they would have been effectively ignored by the group, i.e. put outside the circle, or the group would have fallen apart.

While students acknowledged the conflicts that arose within their on-line activities, they were somewhat reticent to deal with them in this very exposed environment where everyone is privy to the conversation. However, at least for one student, the on-line environment (in this case, both synchronous and asynchronous) provided a way to detach themselves from the individual releasing them to respond in ways they might otherwise have refrained from doing. In this case, the student concludes:

> As a tool, I liked using both the asynchronous and synchronous methods on-line. I particularly liked how I could concentrate on my responses and not on the person. I did not have to worry if I was offending anyone or angering anyone, then temper my response accordingly, specifically because I could not see them.

Two other aspects of group dynamics, immediacy and inclusion, were identified from these data. Students found value in some of the characteristics inherent to the synchronous conferences and its ability to bring people together at the same time. For some, there seemed to be a greater sense of connection in knowing that another person was at the other end of the communication. As indicated in the literature, the immediacy of this medium can help to make the on-line experience more real. As one student put it:

> I liked the synch discussions, it didn't make me feel like I was just sitting in a dark little room for nothing. It even got me more interested in checking out to see who was on-line and inviting them to chat too.

There was also the sense of inclusion as it is much more difficult to target specific members of the group within the on-line interaction environment.

Comparing the social relationships that manifest themselves on-line with those in the classroom, one student observed that:

> In a classroom environment you pick and choose who you are going to talk to and socialize with. I found that in using both synchronous and asynchronous methods you converse more freely with everyone in the class. Everyone in the group becomes codependent on each other.

CONCLUSION

While the students in this study clearly indicate the importance of knowing and trusting each other prior to engaging in on-line, collaborative activities, they can only surmise the extent to which they would be unable to build these relationships in an on-line environment. Some felt that affective responses which could help to build connections between individuals were hindered by the medium, while others were able to obtain a sense of the "essence" of the interactions. Perhaps because the synchronous conferences were somewhat chaotic in nature, there was more opportunity to engage in "small talk" than in the asynchronous conferences which seem to be more deliberate and focused on specific issues. While different skill sets clearly dictated the amount and types of interactions in which a student could be involved, most students were able to navigate their way through these conversations. And, it would appear, that there is potential for synchronous conferencing to create conditions in which some of the components cited by Comstock and Fox (1995), for the building of on-line communities, can be achieved.

That leaves us with the question of whether or not synchronous conferencing should be included as an integral part of an on-line, distance or distributed learning environment. Is there sufficient evidence to suggest that including this method of communication will add value to an on-line course? Or, as the early advocates of on-line education suggest, does the "anytime, anyplace" advantage provided within an entirely asynchronous environment warrant the dismissal of synchronous activities. This research would suggest that, at least for some students, the synchronous environment provided a learning dimension that is not found asynchronously. While the synchronous environment can be difficult for people to navigate, there were only a few students in this study who found it prevented them from partaking in the on-line, synchronous activities. Most students developed their own mechanisms for structuring the synchronous activities thereby increasing the potential for shared understandings. For some of the students, the synchronous conferences enabled them to obtain a better understanding of individual personalities and a greater sense of connection through the immediacy of same time communication. While scheduling on-line interactions proved problematic for some, those who were committed to the process accommodated the requirement to be on-line a particular time. Of course, as with any teaching and learning methodology, efforts must be made to ensure that best use is made of the learning tool so that learning goals and objectives can be met. A set of recommendations for implementing synchronous conferences was derived from the student responses and can be found in the last chapter. It is thought that these suggestions can be used

as guidelines for those who are interested in incorporating synchronous activities into their on-line courses.

These data have also raised a number of interesting questions around more general issues related to the implementation of on-line learning, specifically in relation to distance and distributed education. The concept of technological determinism and the ways in which learners are compelled to accommodate the demands of computer technology within their daily lives has been raised. Issues around access can be related to the suggestion that on-line communication requires a different set of skills than those primarily used in more traditional learning environments. The effect of the change in the ways we communicate with others as some of the non-verbal cues we rely so heavily upon are taken away from us, has emerged. And the concept of developing a sense of community with individuals whose personalities have been separated from their words, essentially fragmenting the whole person into separate pieces, should be considered. In addition, the question as to whether or not students can actually engage in dialogue and discussion in on-line, synchronous environments needs to be addressed. In the final chapter, I would like to explore some of these issues. I concede however, that no attempt will be made to provide a comprehensive argument or discussion around these issues. My intent, at this point, is only to raise awareness of the issues in an effort to continue the dialogue.

Chapter 5

Discussion and Recommendations

A PERSONAL REFLECTION

As I think back, my interest in synchronous conferencing originated with my own on-line "chat" experiences. Having listened to a good friend of mine, who had recently joined an on-line chat group aimed at parents, talk about the new friends he had made and the hours of enjoyment he got from interacting on-line with them each night, I found myself intrigued with his enthusiasm for this new form of communication. I had spent an evening with him and his wife, watching while they typed furiously into the machine, responding to questions, nodding at comments they could relate to, and laughing out loud at something I could only imagine being funny. Leaving that night with the instructions for joining the group, I spent the next month signing on, intermittently, as someone called "Willy", and engaging in various levels of discourse with any number of people whose names and identities I could only conclude must have been as vague and translucent as my own. I suppose I would have been considered a member of that "community" for the time that I remained connected. But I really don't think that I was ever "there".

Unlike my friend, I remained detached from those with whom I was interacting. I remember how I marvelled at the way he had gotten to "know" everyone. At his side each evening, was a notebook full of information he had meticulously recorded about each of the people he had "talked" to on-line. He knew all their names (the pseudonyms they used on-line at any rate), where they lived, the number and ages of their children, their marital status, employment and general orientation to life. I, on the other hand, went on-line each night having forgotten most of the information that had been previously shared. Although tedious, I was always glad when a "newbie" entered the room and everyone introduced themselves for the nth time and provided a bit of a personal overview. At least this way I could make some kind of polite remark about one of their children or about something this new information would trigger from a previous conversation. While I could become fairly engaged in the banter that occurred each night, and was, quite frankly, in awe at the adeptness with which they were able to manipulate their writings and responses within this environment[4], I found myself forgetting about my new acquaintances and the space we shared once I disconnected from them with the simple flick of the on/off switch. While this didn't particularly concern me, I did wonder why I wasn't developing any type of

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[4] Interacting with people who are accustomed and adept at synchronous communication is almost like becoming part of a play. At any given time, there were multiple levels of communication taking place. People "speak" to each other; they provide the "actions" that accompany the words; and, in addition, they often provide their "thinking" processes (those things you want to say but don't). The result is a sophisticated, multi-level communication more closely resembling a screenplay than an ordinary conversation.

relationships on-line while my friend was finding his way out of the chat room and into the actual homes of these very same people.

I still don't know or really understand what made my on-line interactions so different from those of my friend. His ability to connect with people he had never seen, felt or heard remains remarkable to me. Perhaps he is a more trusting individual than I. He may have been better able to accept new and unknown people into his life than I was. Or perhaps his need for social cues, like body language and voice intonation, is less important to him in coming to know, like and understand others. Whatever the reasons, I continued to find myself distanced from those I interacted with in the on-line, synchronous world while he made close and lasting friendships on-line. What did however seem obvious to me was that, not unlike he and I, there are those who will flourish in this environment while others will remain alienated and tentative in their ability to form any type of significant on-line relationships. This is perhaps, the reality that cannot be lost to those who have accepted the responsibility of building an educational program that relies on computer-mediated interactions.

Having worked on-line for a number of years now, I find myself continually faced with the concept of separation. I often wonder what it really means to be separate from others when I am, in reality, in constant contact with them. I think about the "parts" of each of us and how I have come to know some of those parts without having any idea about others. There are cases where I

know very intimate details of people's lives and yet I have no idea of how they sound or what they look like. In a similar fashion, I thought about separation as I delineated the themes that emerged from the data that I gathered. In each return to the transcripts and reflections, I realized how difficult it was to try to separate the thoughts and experiences of the participants into boxes that represent one or another concept or theme. In apology to my readers, I have done the best that I can knowing full well that the themes I identified might be better connected than separated and that many of the participant responses do not readily "fit" into one particular theme but rather extend beyond the borders of one into the territory of another. I acknowledge that in my presentation of the themes, there may be some "bleeding".

Having said that, I would like to summarize the three areas that emerged for me, from the data: technological determinants; cognitive understanding and meaning-making; and community and collaboration. Within each of these, a number of sub-themes were identified.

Technological Determinants: As identified in the review of the literature, the introduction of new technologies places demands on individuals that require them to make changes and adaptations to the ways in which they learn, that accommodate these demands. Participants in this study identified a number of ways in which the technology itself impacted their learning as well as their interactions with each other. Sub-themes that emerged within

this theme relate to skills acquisition, factors affecting access, impact of speed on synchronous communication and the ways in which writing itself changes within an on-line, textual, synchronous environment.

Cognitive Understanding and Meaning-Making: Participants engaged in synchronous conferencing identified issues related to meaning and understanding in a written communication environment. Clearly emergent within this theme were the concepts of cohesion and cognition and the effect that these two factors have on the creation of mutual understanding. In addition, the affective components of communication were identified as having an impact on the ways in which individuals were able to make themselves understood and in their efforts to understand others.

Collaboration and Community: The importance of trust and understanding among on-line learners was one of the themes that emerged from these data. Included in this theme are areas related to the development of community including, the potential for affective communication and on-line group dynamics. Where the data fall short, is in its' ability to explain the ways in which on-line community may develop. This is due in part, to the nature of the participant group. As most of the group had worked together and developed relationships over time, their primary focus was on identifying the importance of these relationships to their work rather than on ways in which the communication technologies assisted them in creating and maintaining cohesive groups.

DISCUSSION

Examining student experiences with synchronous conferencing has provided the opportunity to look closely at the response to one specific form of on-line communication and to obtain a better understanding of the advantages and disadvantages of this particular type. In doing so, I was able to extract from the students' responses, information that can be used to compile a list of recommendations to guide others in the implementation of synchronous, or "chat" communication. As a corollary to discovering best uses for the tool, the research has also helped to shed some light on when and why it may not be appropriate to use synchronous discussions.

When I began my research I suggested that, in adult learning settings, it is important to consider the contribution that any individual instructional tool can make to building an environment where discussion and dialogue are enhanced and encouraged. It is within this type of learning environment that opportunities exist for collaboration and the social construction of knowledge, and where critical thinking, and perhaps, "transformative pedagogy" (Collins, 1991) can take place. The importance of discussion to learning is emphasized in Stephen Brookfield's and Stephen Preskill's recent work titled Discussion as a way of teaching (1999). Describing what they see as the value of discussion in the classroom, they say:

> Although there are many ways to learn, discussion is a particularly wonderful way to explore supposedly settled questions and to develop a fuller appreciation for the multiplicity of human experience and knowledge. To see a topic come alive as diverse and complex views

> multiply is one of the most powerful experiences we can have as learners and teachers (p. 3).

As this ideal would seem to be worthwhile to strive for whether one is teaching face-to-face or on-line, I would like to take some time in this final chapter, to look at whether synchronous conferencing is a tool in which this kind of discourse is likely to occur.

In addition, I would like to broaden the scope of this research by taking a critical look at some of the impacts associated with on-line learning and the ever increasing use, and acceptance, of technology into our everyday lives. Taking a critical approach to technology in education requires us to examine both the positive and negative implications of what we do. The themes that emerged from the data are not unique to the micro world of synchronous conferencing. They can also be applied to the wider spectrum of on-line education, as well as the integration of technology into our lives in general. Consideration should be given to the broader impact that technology has on how we live our lives, understand others and define our relationships and communities. While I can do little justice to these issues in this last chapter, I would like to raise some of the concerns associated with them in acknowledgement of Postman's (joined more recently by Howard Rheingold, one of the early proponents of the virtual community) admonishment to us to view all technologies as "Faustian bargains" (1995) and to remain cognizant of the various effects, both good and bad, they may have on our lives. In

doing so, we can be more aware of the consequences that the technologies we implement may have on those who we ask to become involved with them.

SYNCHRONOUS DISCUSSION?

In reading the transcripts and reflections in this research, it was common to see students refer to the interactions that occurred within the synchronous conferences as discussions, dialogues and conversations. More often than not however, the reflections focused on the whether the discussions in either the synchronous or asynchronous environments worked in terms of mutual understanding, why they worked, and which learning activities seemed best suited to either the synchronous or asynchronous modes of communication. The purpose of this research was to obtain a general sense of student experience within a synchronous environment, and little attempt was made to analyze the data to determine if higher level thinking, or knowledge construction actually took place. Anderson and Kanuka (1998) undertook a content analysis study that examined discussions that took place between participants during an on-line conference. While these were primarily held asynchronously, their conclusions as to whether higher order learning and knowledge construction occurred, were inconclusive.

In their work, Brookfield and Preskill (1999) delineate what they see as being the purposes of discussion.

> The purposes of discussion are fourfold: (1) to help participants reach a more critically informed understanding about the topic or topics under consideration, (2) to enhance participants' self-awareness and their capacity for self-critique, (3) to foster an appreciation among participants for the diversity of opinion that invariably emerges when viewpoints are exchanged openly and honestly, (4) to act as a catalyst to helping people take informed action in the world. Discussion is an important way for people to affiliate with one another, to develop sympathies and skills that make participatory democracy possible (p. 7).

They go on to describe critical discussion.

> When participants take a critical stance, they are committed to questioning and exploring even the most widely accepted ideas and beliefs. Conversing critically implies an openness to rethinking cherished assumptions and to subjecting those assumptions to a continuous round of questioning, argument, and counterargument. One of the defining characteristics of critical discussion is that participants are willing to enter the conversation with open minds. This requires people to be flexible enough to adjust their views in the light of persuasive, well-supported arguments and confident enough to retain their original opinions when rebuttals fall short. (p. 7)

While the students in my study were able to have mutually understandable conversations, and to share ideas and opinions with one another, I would suggest, that the term "discussion" was used rather loosely in the context of these on-line experiences, and that the kinds of interactions described by Brookfield and Preskill did not often occur in the activities that took place within their synchronous conferences. It might be reasonable to surmise that, the conditions that are imposed by the synchronous environment itself are not conducive to the development of the kinds of interactions that are described by Brookfield and Preskill.

The authors have identified a number of dispositions which they feel are important to nurture in classrooms where teachers are interested in

encouraging discussion and dialogue. They see a need for teachers to promote and model hospitality, participation, mindfulness, humility, mutuality, deliberation, appreciation, hope and autonomy in their classes in an effort to create an atmosphere, and cultivate attitudes in students, that support the development of a critical discourse (p. 8). Using the dispositions Brookfield and Preskill identified in their work as a framework may be another way of looking at the potential, or lack thereof, of creating the conditions that are important to building a critical discourse. The data obtained in this study provide a basis from which we can begin to make an assessment. While it is recognized that some of the dispositions need to be nurtured over time, and others, such as hope, humility and mutuality, might have more to do with an individual's attitude than the type of classroom they are in, it is useful to look at some of them with respect to their likelihood of occurring in a synchronous environment. If these conditions cannot be encouraged, or are difficult to achieve within this learning situation, then it may be less likely to expect it to be a useful tool in which critical discussion can take place. I would like to look at five of the delineated dispositions in this respect: hospitality, participation, mindfulness, deliberation, and appreciation as these are ones that are most readily assessed in light of the data collected.

Hospitality: Brookfield and Preskill recognize the importance of creating an environment where all participants feel comfortable enough to share their thoughts and ideas with others. "The conviviality and congeniality that prevail encourage people to take risks and to reveal strongly held

opinions"(p. 9). In this regard, they feel it is important to devote time to getting to know each other and to sharing some important, personal information; in other words, to allow everyone to "tell their story". It would seem that what they see as prerequisite to having a critical discourse, is a classroom in which there is a fair degree of trust and understanding. This enables people not only to accept what others say, but also to challenge ideas and opinions that are put forward. "Hospitality implies a mutual receptivity to new ideas and perspectives and a willingness to question even the most widely accepted assumptions" (p. 9).

The building of trust was also an important issue to the students involved in this research. Many of them felt that their ability to work well on-line was directly related to knowing and trusting those they were interacting with. They attributed this sense of trust however, to the fact that they had worked together in a face-to-face environment over a considerable period of time that preceded their on-line work. Many questioned whether they would have been able to develop this kind of connection if they had to rely only on their on-line interactions. In one group, where a person joined four others who had worked together previously, at least one member indicated that the same level of trust that existed between those who knew each other, never developed with the new member. In this same group however, a suggestion was made that icebreakers could be facilitated through the use of the synchronous conference.

> This experience required a lot more energy and work than a face-to-face debate. However, I would use the synchronous debate as an ice-breaking tool, i.e., get the learners communicating with one another prior to studying and developing an in-depth asynchronous debate. Although this would require some very structured logistics organized by the instructor, the synchronous debate may quickly bring out the personalities of the learners thus shorten the hedging and getting-to-know-you dance that all learners in all new classes go through.

A skilled and thoughtful instructor may be able to create the kind of introductory exercises that are needed to ensure that the members of the group feel comfortable with each other. The increased sense of presence that can be achieved through synchronicity, and the ability to have students respond almost immediately to each other, may make this a better venue than asynchronous conferences for this type of activity. In addition, it must be remembered that this group of students took these courses early in the development of on-line education. As time goes on, and people become increasingly adept with electronic communication, the potential for developing trusting relationships on-line may increase. And, as most synchronous conferences can be made exclusive to those learners who are members of the group, it is not unreasonable to think that an atmosphere of trust could be developed.

In addition to getting to know each other, Brookfield and Preskill cite the need to be able to temper potentially threatening situations by using humour to alleviate the tension. "Taking hospitality seriously also means balancing seriousness of purpose with lightness of tone and employing self-deprecating humour, particularly when the tension becomes too great" (p. 9). Humour

was one of the qualities that many of the students in the study found difficult to convey on-line. The reliance on a solely text-based medium, and the inability of students to use non-verbal cues, had at least some conclude that "they lost their sense of humour" on-line. Others noted however, that when a joked worked, everyone was able to share in it. As was indicated in Chapter 4, as a reader of the transcripts I found that humour was, at times, used very effectively by the students and in fact, often found myself laughing out loud at the jokes. Yet the reality is, it may in fact be more difficult to write a joke than it is to tell one. Experience and practice with the text-based medium may improve individual's ability to use humour, as might the increased use of emoticons. Instructors who model the use of humour in their on-line conversations, might also find that students become more adept with its use over time.

Participation: Brookfield and Preskill regard participation by as many members of a class as possible as being a key factor in the implementation of democratic discussion. They indicate that:

> ...democratic discussions work best when a large number of students participate, when they do so on many different occasions and with respect to many different issues, and when what they contribute adds depth and subtlety to the discussion. When a wide variety of learners express themselves, other participants are challenged to consider and digest a diverse range of views. This results in a richer and more memorable learning experience for all. (pp. 9 – 10)

To ensure participation, instructors must remain aware of those students who are quieter and not as forthcoming with their contributions in class, and ensure that attention is given to each of the contributions that are made.

Efforts are made to provide alternate ways for students who may be uncomfortable speaking out in class to have their voices heard. The authors also advocate the implementation of small group discussion as a mechanism to encourage those who feel somewhat intimidated speaking out in a larger forum.

Participation was one of the areas that was seen as being problematic using synchronous conferences. All of the activities that took place synchronously were designed for small groups of not more than five people. Even so, group members found it difficult to set times that were convenient for all to attend, and when times were arranged, there were often those who failed to show up on-line. Given the difficulties encountered by these small groups, some of the learners surmised that it would be almost impossible to arrange a synchronous discussion with larger numbers of class members. There were however groups where the commitment to this learning process was so strong that intruding factors in their lives were arranged in a way that ensured they would attend the conference at the designated time. Perhaps with proper planning and scheduling, and a strong sense of commitment by students, this type of non-attendance could be avoided.

There were however, some more fundamental barriers to participation experienced by students in the study. Perhaps of most note is the reliance that this medium places, not just on the ability to type, but on the ability to type and process information quickly. For those students who do not have

these skills, or are limited by physical disabilities, participation in the conference is exceedingly difficult, if not impossible. Many commented on the extreme advantage that quick typists had over slow ones, and the potential for domination that skill afforded people. Those with more confidence in their written communication skills also tended to feel more comfortable contributing their ideas and thoughts. Those without well developed writing skills saw this medium as somewhat threatening due to its inherent ability to showcase their errors. Others felt they had no desire to cultivate the skills that were necessary to "read, write and think as quickly as needed" in the synchronous environment. In addition, a lack of ready access to a computer can adversely affect a student's ability to participate synchronously as there is no flexibility in the time to be on-line. Some of the students in this research had access only at work, while others vied for computer time at home with children and other members of the family.

In a classroom, an individual is seen as present and considered a participant, even if they say little during a discussion or conversation. The instructor and fellow learners can see the nod of a head, a laugh, or a puzzled look and know they are responding to what is going on. On-line students face a different situation. Without any overt activity, which in this case requires that a textual response of some kind be given, an individual has little or no presence. It is not enough to be reading the material and thinking about it. No one knows if you are there if you fail to "say" something. In the data collected, evidence of this could often be found in the transcripts where

individual group members failed to respond to a question or comment. Someone would inevitably ask if they were still there even though there had been no indication of them leaving the forum. While there are always issues related to encouraging participation in the classroom, an instructor working with synchronous conferencing should remain aware of the different situations that face students using this particular on-line communication tool if they are intent on ensuring that this disposition can be effectively executed in the synchronous environment.

Mindfulness: This is perhaps, one of the dispositions that is most difficult to achieve in a synchronous environment. It is also possible, that without doing so, critical discussion cannot be effectively carried out. As described by Brookfield and Preskill, mindfulness requires participants to pay close attention to what others have to say.

> As in Hans-Georg Gadmers's notion of dialogue (1989), paying close attention in this manner causes us to lose ourselves, to become completely absorbed in hearing out what someone else has to say. The paying of attention is what we mean by mindfulness. It involves being aware of the whole conversation – of who has spoken and who has not – and of doing what one can to ensure that the discussion doesn't get bogged down in the consideration of issues that are of concern only to a very small minority of participants.
>
> In general, mindfulness is a crucial component of any really good discussion. Without learners who are willing to listen carefully and patiently to what others have to say, discussion cannot proceed beyond the most superficial level. (p. 11)

They include, as part and parcel of the notion of mindfulness, the concept of tact which they see as being the ability to "curb our compulsion to convey our own moral vision in order to make room for others to receive a full

hearing (p. 11). And so, when we look at the experience of the students in the synchronous conference, we must do so wondering whether it is realistic to think that they would be able to pay this kind of attention to the words of their fellow learners.

As students entered the world of synchronous conferencing, they were introduced to the chaotic nature of the conversations. Many described their first encounter with this conferencing system as confusing, disconnected and, in general, a "free-for-all". The speed at which the conversation moved was too fast for most to pay close attention to what was being said. As they worked to type in their own response, the input from others passed them by on the screen leaving a physical distance between their comment and the question or comment to which they were responding. Frequent typing and spelling errors often obscured the meaning of what was being put forth by others. Simultaneous, but separate and conflicting conversations, often overlapped made it difficult for learners to extricate which messages belonged to which conversation, and who was responding to whom. Slower typists struggled with their need to create and transmit their own contributions while the faster typists continued on with the conversation. Individuals found themselves constrained by the requirement to keep their transmissions short, due in part to the line limitations placed on them by the FirstClass program, but also because of the time lag that is created when one attempts to type out a lengthy response. In general, this was not an

atmosphere in which close attention could be paid to individual contributions and where stories could be easily told and listened to by others.

As students became more familiar with the medium, they recognized the need to impose some kind of structure on the conversations. Many appointed a moderator who served to direct and co-ordinate the interactions. Groups often devised shared linguistic codes that could be used to reduce the number of keystrokes needed to make a response. In addition, they developed guidelines such as, asking participants to name the person they were responding to and adhering to a set response order, in an effort to ease the confusion that would otherwise ensue. The outcomes of these subsequent interactions were often reported as more satisfying, and better able to meet the goals that had been set, as the conversations were fluid and less disruptive. However, there were those who felt that by imposing these structures some of the benefits of synchronicity, i.e. spontaneity, immediacy, momentum and fun, were diminished. It might be wise to conclude, in this case, that even though the interactions in synchronous conferences can be organized to increase the level of mutual understanding between the participants, the best use of the medium may be for something other than in-depth, mindfully considered dialogues and discussions.

Deliberation: While mindfulness requires that attention be paid to all offerings to a discussion, deliberation requires that careful reflection be given to both one's own, and other's contributions in an effort to ensure the

creation of strong, defensible arguments and points of view. The authors describe this disposition as:

> ...the willingness of participants to discuss issues as fully as possible by offering arguments that are supported by evidence, data, and logic and by holding strongly to these unless there are good reasons not to do so. Put another way, democratic classrooms should be highly contentious forums where different points of view are forcibly, though civilly, advanced by as many different participants as possible and abandoned only in response to persuasive arguments or compelling evidence. (p. 13)

They suggest that, in a face-to-face setting, which is where they have experience in leading discussion-based classes, this disposition is difficult to achieve within a one semester timeframe. The need to create a balance between an hospitable environment where each student feels comfortable in putting forward their views, with one where students are also encouraged to confront and question others, might best be done over a longer period of time as it is not something that is easily attained. The challenge of making this work in a synchronous environment is likely to be even more onerous.

Here again, speed becomes a pivotal factor in determining whether or not this disposition can be accomplished. The depth of thought, and the attention to detail that is implied within this kind of deliberation is not conducive to the pace that is required within synchronous conferences. One of the concerns that was echoed throughout the data used in this research, was the lack of time available for reflection, not only on what was said, but in preparing one's own contributions. Making oneself clearly understood is not an easy thing to do when there is little time to process and formulate

responses. At least one individual in this study indicated that it was clear that others had misunderstood the intent of the comments made from the responses received from them. As well, the requirement to create concise transmissions diminishes the chances of developing clearly delineated, well-referenced arguments and counterarguments.

It is also interesting to note that, when faced with controversial or argumentative situations in the synchronous conference, individuals were more likely to retreat from potential conflict than they were to confront their classmates. As I continue to work in the area of distance education, I have repeatedly heard people say that they find the textual environment much more intimidating than the classroom. The permanence of this medium, and its ability to capture indefinitely what is said by whom, often serves to temper the remarks and comments students are willing to make. One could speculate that, in part, this may be one reason that on-line discussions tend to be much more conciliatory than confrontational and that students would be less likely to challenge others when they know that their remarks will be part of a permanent record. I would suggest that an asynchronous discussion, which provides students with the time to construct and formulate their responses using carefully chosen words and opportunities for referenced arguments, is a better alternative for deliberative discussion.

Appreciation: Letting others know that their contributions to a discussion are appreciated, allows members of a discussion to bring an affective dimension

into the exchange. Brookfield and Preskill see this as an important part of the process of developing trust and group cohesiveness. The authors state:

> Because democratic classrooms stress respect, mutuality, and civility, a logical extension of these notions is finding space and time to express our appreciation to one another. When a helpful observation clarifies a key point or an intriguing comment excites further curiosity, the disposition of appreciation inclines us to express our gratitude openly and honestly. Like many of the attitudes already mentioned, appreciation brings people closer together and raises the level of trust. (p. 15)

Finding ways to express appreciation can bring an aura of enthusiasm and excitement to the classroom. At the same time, they caution us to be careful in the use of these expressions of gratitude as overuse may lessen the impact they have on the participants. It would seem that, at least to some degree, this approach to others could be accommodated within a synchronous discussion. However, given the concern that many of the students expressed regarding the ability to put emotions into words in the text-based environment, the depth of feeling that may be felt in a classroom might be difficult to replicate on-line. For me, thinking about this disposition brought to mind the student who admonished the group to "know that I am passionate" as it was so difficult to get across the actual emotions that were being felt at the time. Without the benefit of the non-verbal cues we have become accustomed to rely on to convey our feelings and expression, it can be hard for us to transmit the intensity of our feeling. Most of us are not yet accustomed to, or adept at working in an essentially one-dimensional communicative context where we are stripped of our physical senses unless we can find ways to "virtually" replicate them.

John Suler (1997), a writer on the psychology of cyberspace, points out the uniqueness of "TextTalk" and notes that while for some it is an austere method of communication, others actually find it offers a "purer", less cluttered way of expressing their ideas and feelings. He states:

> TextTalk in online chat environments has evolved into a fascinating style of communication. In some ways, it is strikingly similar to face-to-face (ftf) dialogue. In other ways, it is quite unique. Many of its unique qualities revolve around the fact that it is an austere mode of communication. There are no changes in voice, no facial expressions, no body language, no (or very little) visual/spatial environment as a context of meaning. There's just typed words. Some people find that experience too sparse. They feel disoriented, disembodied, adrift in that screen of silently scrolling dialogue. Other people love the minimalist style of TextTalk. They love to see how people creatively express themselves despite the limitations. They love to immerse themselves in the quiet flow of words that feels like a more direct, intimate connection between one's mind and the minds of others. Almost as if the other is inside one's head. Almost as if you are talking with a part of yourself. Without the distracting sights and sounds of the ftf world, TextTalk feels like a more pure communication of ideas and experiences. (p. 1)

Suler's studies involve primarily on-going chat groups, like those found in the "Palace", where one might find some novices, but primarily people with a fair amount of experience and expertise using chat. This, in some ways, mirrors my own, initial experiences with the parent chat group, where I found a level of expertise with the textual medium that was not evident in the transcripts obtained in this study. In the former, there was not only a clear and successful affective component to the conversations, but a physical dimension created through a sophisticated layering of textual transmissions. Suler, finding this in his own studies, has labelled it "Parenthetical action" and sees it as "icing" that can "clarify or amplify the message, add subtlety to it, and sometimes even sarcastically contradict it" (pp. 10 – 11).

However, in both the Palace, and the parent group that I visited, people chose to join on their own knowing that they would become involved in a fast-moving, textual banter. They stay only because it is a situation that works for them. While distance education students certainly make a choice to join an on-line course, they may do so far a variety of reasons, not the least of which may be that it the only choice they have to access the course. In so doing, they are given a package of tools to use, one of them possibly being synchronous conferencing. So, while I believe that it is possible for students in a synchronous discussion to learn to add an affective dimension so that appreciation could be honestly expressed within the conversation, I also think it would require, on their behalf, a level of commitment and desire to developing new skills; enough dedication to spend the time and effort required to practice this form of on-line communication; and an instructor with a sufficient level of expertise to model this type of communication. Instructors may find themselves in an uphill battle trying to ensure that this disposition is shared among the members of the group.

Juxtaposing the reality of the synchronous conferences to the descriptions of the dispositions needed to develop critical discussion provided by Brookfield and Preskill helps clarify the ways in which this medium may not be amenable to the carrying out critical discussion. Instructors who attempt to accomplish this goal using only synchronous conferencing might find both themselves and their students frustrated in their efforts. In making this assessment, I would not conclude that there is no place for synchronous

discussion in an on-line course where discussion is a focus, but rather that this is not a best use of this particular tool. In fact, there are features of synchronous conferencing that can serve to enhance our ability to create some of the desired dispositions and could be used in conjunction with other tools, such as asynchronous conferencing, to do so. Chats may be a good place for students to meet informally thereby making the on-line setting a more hospitable place. As we do in the face-to-face classroom, when we work on-line we need first to recognize the strengths and weaknesses of a given tool, and then blend our tools together in a way that they best meet the learning objectives of our courses and the needs of our students.

IMPLICATIONS FOR PRACTICE

As with any well-designed course, attention must be paid to the ways in which any given instructional tool facilitates the teaching and learning process. We work within the classroom to orchestrate a learning environment that enables students to stretch their imaginations and to build their knowledge in a way that meets the identified learning goals and objectives. The on-line classroom comes with a set of tools, and decisions must be made as to how to make best use of those tools. This research has provided an opportunity to look closely at one of those tools to determine how it might be integrated into the on-line classroom. The following recommendations for synchronous discussions were made by the students involved in this research, as well as by the researcher, based on the data

collected in this study. Murphy and Collins (1997) and the Illinois On-line Network (http://illinois.online.uillinois.edu/IONresources/confstrategies/chat.html) have both compiled strategies for using synchronous conferencing and, in almost all respects, these suggestions mirror the ones made by those authors. Perhaps this is indicative of the strength of these ideas and the importance of remaining mindful of them when deciding to use synchronous conferencing.

Getting Ready for Synchronous Activities

- Schedule dates for any required synchronous activities and provide them in the course outline. Set a specific time line for the discussion to begin and end.
- Provide a "practice" session for students to become comfortable with the tool.
- Advise students upfront that the experience might be frustrating at first but gets easier and more comfortable with practice.
- Provide ideas for transferring "people skills" to this new medium.
    - guidelines for chat etiquette
    - common use of emoticons
- Post guidelines to be used for the discussions.
- Award marks for participation in the chats.
- Have a technological support person available to students.

- Determine if there are time zone differences between students in the class and try to schedule synchronous activities at times that provide for a good compromise. If this is not possible, schedule two or three different times to accommodate the differences.

Functioning in the Synchronous Environment

- Good typing and proofreading skills are a prerequisite for participation.
- The ability to think and respond quickly are important skills for chat participants to develop.
- Develop a set of shared codes for frequently used words and phrases to reduce keystrokes required by participants.
- Use preset protocols, such as ellipsis to indicate continuing sentences and question marks to signal that a question needs to be asked

Providing Structure in a Synchronous Environment

- Provide an agenda and overview for how the chat will proceed.
- Appoint a moderator as they are invaluable in keeping the participants in turn. To help keep the discussion on track, the moderator can
    - pose questions in upper case
    - pose only one question at a time
    - specify the person that is to answer the question
- Try forming a talking circle or round robin as a means of sharing information in the chat. While this will increase the orderliness of the

conversation, and allow more even participation and time for reflection, it will also dampen the spontaneity, momentum and "fun" atmosphere often found in the synchronous environment.

- Ensure that in each small group there is at least one person who is familiar with synchronous technology.
- Use names or initials at the beginning of each response so that it is directed at a particular person or use "all" if for the whole group
- Stick to one topic for the discussion.

Best use of the Synchronous Conferencing Tool

- To help build a hospitable environment use the "chat" as an informal venue for students to meet. The increased sense of presence and the immediacy of response often make this a better "meeting place" for students than the asynchronous conference. It is a good place to have an "icebreaker" at the beginning of a class.
- For some students, the sense of presence afforded by this medium can increase their commitment and motivation to the course.
- Problem-solving activities that use brainstorming or benefit from the momentum and spontaneity are good choices for the synchronous environment.
- With small groups of 5 or less rather than larger group activities
- For one-on-one discussions between students or with the instructor
- For "drill" exercises involving direct questions and short answers

- Students like working in this medium when they have had an opportunity to get to know each other and become familiar with the technology

THERE IS A "BIGGER" PICTURE

> This past spring in Toronto.... the full-time faculty of York University, Canada's third largest, ended an historic two-month strike having secured for the first time anywhere formal contractual protection against precisely the kind of administrative action being taken by UCLA. The unprecedented faculty job action, the longest university strike in English Canadian history, was taken partly in response to unilateral administrative initiatives in the implementation of instructional technology, the most egregious example of which was an official solicitation to private corporations inviting them to permanently place their logo on a university online course in return for a $10,000 contribution to courseware development. As at UCLA, the York University administration has spawned its own subsidiary (Cultech), directed by the vice president for research and several deans and dedicated, in collaboration with a consortium of private sector firms, to the commercial development and exploitation of online education....
>
> This Fall the student handbook distributed annually to all students by the York Federation of Students contained a warning about the dangers of online education. (Noble, 1997, p. 1)

Shortly before the release of David Noble's Digital Diploma Mills, Linda Harasim came on campus to present an almost evangelical lecture on the merits of her new "Virtual U" software program. With a degree of enthusiasm that is rarely seen in a university lecture theatre, she displayed for us how professors could use this software to deliver their courses to students; how students could meet in the coffee bar for their on-line discussions; and how two "stick" people could walk down the virtual hall and wave at each other.

There seemed to be some expectation that we would find these concepts as intriguing as she did. This she let us know, was the future of the university and on-line education. I thought about my years at university and of all the friendships and relationships I had formed. After all, it was in the halls of the university that I had met my husband, and I wondered if he would have seemed as appealing in "stick" form as he did in real life. It was clear to me then that there were issues and concerns associated with on-line learning that were more complex than what was being presented by those who had much to gain from it's implementation. The strike at York University brought to the surface some of the concerns that faculty had regarding their obligation to participate in the delivery of on-line courses and how on-line learning would impact them in terms of tenure, intellectual ownership, workload and academic freedom.

Soon after, a commercial on television for one of the large communication companies, began to advertise what they saw as being the benefits of the Internet. What they told us essentially, was that the Internet took away all of our differences thereby making us equal to one another. On-line, they told us, there is no colour, there are no handicaps, and there is no gender. This ideal situation had become possible, because computers made it difficult for us to discern the characteristics of those with whom we are interacting. As a matter of fact, Sherry Turkle (1995) let us know that in the virtual world we could be, and often were, whomever we wanted to be. It was our opportunity to recognize the many "selves" that lived within us and to bring them to life in

virtual worlds that for some, served as replacements for a less satisfying real world.

Interestingly enough, early proponents (Berge,1993; Harasim 1989), of on-line education saw this kind of anonymity as an advantage. On-line conferencing could become the "great equalizer", eliminating the inherent advantages that some had over others in the physical classroom. Those who were shy to speak, or were systemically disadvantaged because of gender, ethnicity, or racial origins, were freed from the constraints of those defining attributes. Differentiation as to the value and quality of contributions could be made without reference to the sender, but rather on the basis of the words themselves. What this meant was the potential for a democratized classroom increased because "Communication is democratized and the opportunities for stigmatization reduced to those inherent in the use of language and text - syntax, spelling and content – all matters that can be transparently changed and modified offline, before the text appears on the screen of others" . (Berge, 1993, p. 12) The conference then, becomes a level playing field as personal differences become indistinguishable. As Harasim (1989) states in one of her early writings on the subject:

> The text-based nature of on-line education enhances our interaction with one another (reducing discriminatory communication patterns based on physical and social cues such as gender, race, socio-economic status, physical features, etc. (p.60)

Johnson (1995) however, cautions against concluding this type of technological intervention can have the profound effect of creating a more

egalitarian society as, doing so would imply that "language creates, rather than reflects, social inequality". (p. 30)

What was particularly troublesome about this argument for democracy was the concept that we could be a more accepting society if we did not have to confront the differences that existed between us. Rather than advancing the cause of democracy, it seemed to me that we were taking away the "voice" of many of those around us. Would the woman's movement have had the impact it did if we did not know that it was women that were raising their voices? Can the perspective of a black, disabled or First Nations person be extricated from the context of their life and experience? Brookfield and Preskill (1999) suggest that one of the purposes of discussion is:

> ...an important way for people to affiliate with one another, to develop sympathies and skills that make participatory democracy possible. It is, as James Dillon (1994) has said, " a good way for us to be together" (p. 112) so that we can share personal stories of triumph and trouble and stretch our capacity for empathizing with others. In telling our stories, we employ different forms of speech to stimulate and move others, to emote and express strong feelings, and simply to celebrate the joys of coming together. (p. 7)

Instead of hiding our differences, we should be working to uncover them, and to understand those around us because of who they are. Fundamentally, the schism between these two approaches reflects a broader philosophy towards society and culture in general, and as we opt to accept one over another, we also begin to write the narratives by which we choose to live. Examining these ideas simply reinforced for me that caution was an important disposition to take when approaching the area of on-line education. The

questions surrounding this new innovation are many and complex, originating not only from within the confines of the field but also from a broader based approach to technology within the society as a whole.

Access to the technology, is clearly another issue that must be examined. This study brought to light some of the concerns that students faced in this regard. There is a tendency to look at the issue of access from a purely monetary perspective and a propensity to count the numbers of people in the country who have computers in their homes or at work. We survey them to find out the speed at which they can connect to the Internet so we can decide what kinds of learning aids we can mount in our courses and how much bandwidth they need. However, access to the hardware is only a small part of what we need to consider. It was clear in this study that the acquisition of certain skills could enhance, or prevent on-line participation. Those with physical disabilities have different challenges to face when accessing on-line courses and these have only recently begun to be addressed. While there are a number of projects that have been designed to identify potential barriers, and to accommodate them in some way (e.g. The SNOW project found at: http://snow.utoronto.ca/index.html) it is not yet common practice to ensure that all of these suggestions are incorporated into a site. To be sure, while we may increase access for some who would otherwise not be able to take our courses, we limit access to others.

When we ask students to go on-line, we ask them to alter their ways of interacting and communicating with one another. We take from them many of the tools they traditionally use to express themselves and to form cohesive conversations. In some cases, we attempt to replace these human qualities with manufactured ones. In essence, we are asking people to change their basic understanding of what it means to be in a classroom and part of a learning community. As we continue to do so, we must be prepared to examine each of the requests that we make from a critical perspective. When we encourage the use of emoticons as a way to enhance our ability to express ourselves on-line, do we really believe that the sideways happy face can emulate the true essence of our human emotions and responses? Does the fact that we are on-line "at the same time" really mean that we are "present" for each other?

There are a number of authors who write on the topic of technology from a critical perspective. Each of them advises us to ask questions before we accept any given technology into our lives, or attempt to impose it on others. Langdon Winner, tells us that: "...the important question about technology becomes, As we "make things work," what kind of "world are we making"?" (1989, p. 17). In his most recent work, Building a Bridge to the Eighteenth Century, Neil Postman (1999) poses a number of questions to think about as we embrace each new technology, but completes the series by asking "What new problems might be created because we have solved this problem?" (p. 48).

A recent article written by Thomas Friedman, and published in the Edmonton Journal (Sept. 25, 2000) provided me with an example of how significant these questions have become in guiding our future. The story focuses on the popularity in Japan of a new palm-held cell phone that provides ready access to "surf the net, gossip, swap e-mails, listen to music, tell fortunes, play games, make dates or sell stocks". The article suggests that what we are witnessing in the use of these devices in Japan, is our own future. The youth in that country spend much of their time "talking" to others using the textual chat functions that these systems provide them. This has become such a standard way of meeting, that the Japanese now use the term "offkai" to define a meeting offline. As the author of the article states: "That's right, now meeting online is normal and meeting offline – i.e., in person – has its own term". As we all continue to become more immersed in the technologies that are available to us, and as each one integrates more wholly into our lives, we must never lose sight of the fact that they all have the potential to profoundly change our lives. Before embracing any new technology, we must never forget to ask ourselves the questions.

IMPLICATIONS FOR FURTHER RESEARCH

This project has taken me a considerable amount of time and there have been many changes in the on-line world since I began. There are several directions that can be taken in the study of computer conferencing and on-line learning, but I will attempt to suggest only a few. While on-line

classrooms are comprised of many individual tools, it is important to look at them individually to determine their best use and the contribution they make to student learning. Synchronous tools are changing, and many now have the capacity for video and audio interaction along with text chat. It would be interesting to see how the addition of these new dimensions change the kinds of interactions that take place and the perceptions students have of their synchronous learning experiences.

The students in this study were not involved in an on-line program. Rather, they were early recipients of one course that was offered to them, in part, on-line. My more recent experience has provided me an opportunity to work with students who are taking a major portion of their degree program on-line. In doing so, they undertake a series of consecutive, on-line courses. It appears to me that, as students continue to work on-line, their enthusiasm for the environment begins to wane. It might be interesting to begin to study this kind of group to determine if there is a saturation point for on-line study. Having some indication of this would be extremely helpful in planning on-line, adult education programs that meet the best interests of both students and instructors. And, I would hope, that we have come far enough to know that as we evaluate and assess we must do so with our eyes wide open, knowing that no technologies are "unmixed blessings, gifts, as they were, from the gods." (Postman, 1995, p. 41)

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